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THE WILSON BULLETIN

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THE MEANING OF BIRD CONTROL

BY W. L. MCATEE

The reasons for bird control, the methods used, and the results obtained are subjects upon which most ornithologists are poorly informed. Any destruction of birds is anathema to some bird lovers, or so at first impulse, they will surely assert. How many of them, however, can honestly say that they never yearned to suppress some kind of bird? It may have been perhaps a gang of English Sparrows that were mobbing favorite Bluebirds, or possibly some of that other imported species, the Starling, because of its elbowing Flickers out of house and home.

Such are reasons for bird control which the most ardent bird lover may find himself driven to accept. In that position he should appreciate that other folks may have other reasons for keeping birds in check and perfectly valid ones at that. Even a very good bird protectionist may have his patience strained to the breaking point by Robins taking all of his early sweet cherries, or by Catbirds harvesting the whole crop of a highly prized patch of raspberries.

With many of us the production of such fruits is entirely a side issue, that does not affect our livelihood. In the case of many others, on the contrary, the production of small fruits or other crops, and protecting them from serious pilfering by depredators of all kinds are essentials upon which an important share or even the whole of income depends. In such cases it is only natural that demands for control should arise. Losses exist in every degree, from those of trifling consequence, which although of almost universal occurrence are equally widely condoned, to those that can be estimated only in very large sums, or are even so serious as to compel the abandonment of industries in areas that aside from the presence of crop pests may be particularly suited to them.

The writer has had Wood Thrushes, Catbirds, and Robins take all of the strawberries from a garden patch in Virginia and never even

said "shoo" to them. He liked the birds, the berry crop was not essential to him, so he could ignore the damage. But many cases can not be so lightly dismissed. Consider the case of Mr. and Mrs. Olaf Dahl, of Tulare County, California, an old couple dependent to a large degree on income from an eight-acre orchard of almond trees. California linnets, or house finches, picked off about all of the buds on these trees in the season of 1926-1927. In 1927-1928, by tramping up and down the rows and clapping shingles together all day long throughout the period from November to January inclusive, the owners were able to save the crop. In 1928-1929 they were both sick at the time of bird attack, so no patrolling could be done. In consequence the linnets stripped the orchard of buds to the extent that it produced less than 200 pounds of nuts; the loss was about $1,500, a staggering one under the circumstances.

Those engaged in commercial orcharding on a larger scale also suffer losses in proportion. We illustrate with an instance from the eastern states, one investigated in 1919 by L. L. Gardner, then an employe of the Biological Survey, now a captain surgeon in the U. S. Army. On the property of W. Ten Brock, Chairman of Supervisors of Columbia County, Hudson, New York, where sweet cherries were grown on a large scale, he observed Robins and Starlings in great numbers busily eating the fruit. The tops of practically all the trees were stripped and the ground under every tree in the large orchard was strewn with cherry pits. Cherries were bringing $1.50 per four-quart basket that year, and the estimate of loss on the entire crop was fifty per cent; on that basis the damage in this single orchard was not less than $4,000.

In 1918 the writer investigated damage by ricebirds, chiefly Bobolinks, in South Atlantic states. The rice industry, long in a decline, was then experiencing a degree of revival due to war-time conditions, and the depredations of the ricebirds were keenly felt. To cite only one instance of several observed: On the Marrington Plantation, near Charleston, S. C., September 21 to 23, immense numbers of ricebirds were present, at least from twenty to twenty-five thousand. The birds had come unprecedentedly early—August—and had been destroying rice ever since. The crop on about twenty-five acres was so badly damaged that it was not harvested and the loss for the whole plantation was about sixty per cent of the normal yield. Sixty-one Bobolinks and one Red-winged Blackbird were collected here and all had been feeding on rice. Quoting from my field report I note that "To the planter, the number of ricebirds present on this plantation must seem myriads and

the hope for his crop almost nothing. I observed the immense flocks of ricebirds and went over all the fields seeing the damage done. It is very serious and no bird doing such work should be protected."

There is no doubt that the depredations of ricebirds have been one of a number of causes leading to the abandonment of the rice industry on the South Atlantic Coast. In comparatively recent years, business men of Wilmington, N. C., besought the Biological Survey for an effective and economical method of minimizing ricebird damage. They desired to restore to rice-growing the large acreage in their region formerly devoted to the purpose, but recognized that control of ricebirds was essential to success.

The region which first gave competition to the southeastern rice growers was the central rice-growing district, and here again birds, chiefly blackbirds, proved pests of first rank. W. E. Lea, former manager of the Cameron Farms Company, Orange, Texas, in a letter of May 18, 1928, remarks that the average loss due to them in that region was ten per cent of the yield and adds, "When there was no rice other than that grown on my farm for a radius of say six miles, the loss would run between twenty-five and fifty per cent. This statement can be substantiated by many reputable rice farmers, some of whom actually went out of business because of losses from ricebirds." Corroborative testimony from O. J. Wintermann, Eagle Lake, Texas (May 5, 1928), is as follows: "We have two tracts of land in this locality which are no longer farmed because the birds destroy almost the entire crop each fall when rice is grown thereon. These tracts are near the water, which attracts the birds and they seem each year to ruin the crop."

As a further instance of birds causing the abandonment of agricultural endeavor in certain areas, we quote from a report (November, 1930) relating to Horned Larks in California by S. E. Piper, one of the most experienced field men of the Biological Survey: "Wherever in the state," he says, "commercial production of vegetables and of beans touches upon habitats of the Horned Lark, attack by this bird on the young plants is swiftly devastating. I have observed cases in which the birds in large numbers have completely destroyed plantings of beans, carrots, lettuce, and peas on areas of from twenty to fifty acres within the short period in which the plants are subject to attack. Most damage is sustained by bean-growers on the non-irrigated slopes and mesas of the Coastal Strip from Monterey and San Benito Counties to the Mexican boundary. This damage is decidedly localized, and recurs year after year in the same situations, with the effect that

bean-growing on certain areas, adapted almost solely to this purpose, has been abandoned."

Thus we see that bird damage runs the gamut from the insignificant to the unendurable. In his relations with destructive birds, man's position may be one in which the attacks are of no consequence, or on the contrary it may be one wherein, despite all efforts, he is defeated and driven out of certain areas.

While accounts of destruction by birds could be continued at great length, it does not seem necessary to give more than the preceding illustrative examples to convince even the most steadfast bird lover that mankind often is confronted with the necessity of bird control.

That necessity admitted, the question of methods of accomplishing control comes to the fore. All of us prefer measures of the preventive type that do not involve death to the birds and while sometimes such methods are feasible, at others they are not. As a rule frightening devices (scarecrows and their ilk) are effective only when novel, and familiarity with them soon breeds contempt. Such methods as tarring seed grain, planting it too deeply to be readily dug out by birds, covering a few trees or small berry patches with bird-excluding netting, choosing early or late maturing varieties with relation to their susceptibility to bird damage, harvesting early, or otherwise varying farm practice to minimize depredations, are examples of preventive methods.

Often none of these devices will avail, and aggressive measures are in demand. "Bird-minding", or the patrolling of areas and shooting at the birds or otherwise frightening them, usually with only a slight amount of actual killing, is a method long in use, but one that is expensive and often not very effective. Shooting at birds destroying small fruits involves perhaps the next greater degree of killing; some species, as Robins, are unwary and must be practically shot out, while others, as Starlings, are wary and soon avoid the dangerous area. Shooting is expensive both in labor and materials. Trapping has been little employed except against birds of prey and English Sparrows, and its possibilities are hardly known in the case of destructive birds in general. It is clear, however, that the methods so far mentioned are impracticable or prohibitively expensive for use where large areas are involved. This means that they will not be used on any extensive scale. Poisoning is the next resort and this method has the advantages of relative cheapness and of greater possibilities of economical application to large areas.

Often control measures are uneconomic, hence are not attempted. There may be other reasons also which render bird control impracticable. In illustration we may record that only recently (November, 1931) investigations of Crow depredations in Oklahoma (by E. R. Kalmbach and S. E. Aldous, of the Biological Survey) while confirming reports of vast numbers of Crows and of serious damage by them, revealed so great an abundance of food in unharvested crops, shocked cereals, and pastured grain fields, that all concerned agreed that an effective control campaign was impossible and that recourse must be had to alterations in farm practice.

This brings us back to the fact that in his competition with birds man is not always the victor. The Oklahoma grain growers must raise enough for the Crows as well as for themselves, as it is simply impracticable to cure the situation. In other cases, as previously noted, man can not do even that well; he must surrender to the birds. Such instances are parallel to the warfare with insects of which we read so much, for in many cases without a doubt there is a struggle for existence between birds and man, a favorable outcome of which from man's point of view is by no means assured.

The fears entertained by some, therefore, that efforts at control are endangering our bird population certainly in many respects are unfounded. Concluding that all bird killing tends toward extermination also is not justifiable. The thing that does seriously threaten local avifaunas is man's increasingly intensified occupation of the land. This is an inevitable accompaniment of population increase, and bird control operations along the way if a factor at all in the final result, are only incidental.

Bird control we must conclude is a self-limited activity. On a small scale it is unnecessary, on a large one it is impossible. In the intermediate categories, economics in the long run will rule, and in a high proportion of cases, so far as we can now foresee, control will be prohibitively expensive.

Ordinarily, furthermore, bird control does not affect the species that are favorites with bird lovers. There is no control of wrens or bluebirds, chickadees or warblers, swallows or phoebes. Most of the familiar species that the ornithophile has in mind when he thinks birds are never involved in control operations. The only notable exception to this statement is the Robin, and its universal abundance shows that it has not been injured by control operations.

In its entire history the Biological Survey has found it desirable to publish instructions for control of only certain hawks and owls,

crows, magpies, pinyon jays, starlings, blackbirds, and English Sparrows, and the whole list of birds involved in control operations anywhere in the United States is scarcely as long again.

For the interest it may have to readers, the policy of the Biological Survey in relation to bird control is here succinctly stated. The general policy of the Bureau is to hold bird control work to a minimum. In each case study of the situation in the field, development preferably of preventive methods, or, if necessary and possible, of control measures, with subsequent dissemination of information on the results obtained, are held to fulfill the Bureau's obligations. Large-scale control campaigns and far-reaching extension projects are not contemplated. The underlying principle recognized is that economic problems involving wild life are characteristically local and that means of adjusting them must vary with, and should be confined to, the localities where needed. In making adjustments of wild-life relationships for economic reasons, we should do whatever is required but no more than is necessary.

The charges of wholesale destruction of birds in control campaigns in most cases are entirely unfounded, and as for indiscriminate slaughter of birds of all kinds, there are practically no instances of it.

A little reflection should reveal that there is small cause for unease as to the results of bird-control operations in general. This is true not only because of the various limiting factors already discussed here, but further because bird control in the last analysis almost always is strictly local action against abundant and usually also widespread species. It is the very factor of overabundance of birds that brings on damage and the ensuing efforts at control. The insignificant effect of these efforts upon the bird population is evident on every hand.

These remarks apply to the general run of control activities against highly vegetarian species, the repression of which is undertaken for economic reasons. They do not apply to bounty systems, side hunts, and other organized onslaughts against the larger predatory birds. These constitute warfare, not control, and due to its long-continued intensity and to the smaller numbers of the birds against which it has been directed, the results in some cases have been disastrous.

Such has not been the case, however, with any of the species of either seasonally, or almost totally, vegetarian-feeding habits. Consider for instance the linnet, or house finch, which was the most destructive bird in California in the 'seventies and 'eighties, when horti-

culture was just getting established there. The Pacific Rural Press of those years teems with references to the destructiveness of this bird. It was shot, poisoned, destroyed in every way that occurred to the growers, and it has been fought ever since. Today, after more than sixty years of such treatment, it is still the most destructive bird of the state. What is more, the aggressive actions against it so far as known have not depleted any associated species.

The Crow in the east has been fought for more than 200 years. Since colonial times it has been outlawed, and shot, and poisoned at every opportunity. Nevertheless it has maintained its numbers and steadily extended westward its area of abundance. It has accompanied its enemy man, persisted despite him, and increased with his increase. To take one glance at similar phenomena of the Old World we see Rooks and House Sparrows still abundant there, although persecuted for ages.

The story of the Bobolink, or ricebird, most nearly epitomizes that of "control" of abundant species of largely vegetarian proclivities. The rice industry that developed on the South Atlantic Coast was located exactly in the migration path of Bobolinks, through which the birds funnelled from a range almost continental in width. In myriads they took enthusiastically to the rice, and for more than a hundred years they were fought unceasingly in every imaginable way. Now the rice industry of that region is gone, but the birds remain. The Bobolinks traverse their accustomed migration path, as did their ancestors for ages before them, serenely unaware that there ever was such a thing as bird control.

Efforts at bird control are exceptional indeed if they succeed enough to justify their name; and seldom do they develop into threats against the existence of species. So long as suitable range exists for a widely distributed bird, local action against it is not to be feared, and bird control practically always means local action against abundant species. If suitable range ceases to exist, through human occupation or through destruction of necessary environmental factors, nothing can save the species affected. Only to this trouble, largely an incurable one, and not to bird control, can be properly traced certain of the regrettable cases of impairment of our avifauna.

United States Biological Survey,
Washington, D. C.

ROBINS AND RASPBERRIES

BY GRANT HENDERSON

I have enlarged my patch of tame black raspberries somewhat since the summer of 1930. Prior to that time I had been unable to combat the dread disease, anthracnose, successfully, and was a bit wary of tackling raspberry production on a larger scale. However, I learned a few things about growing them that summer, found that I could control anthracnose and other diseases, so the following spring I added several plants to the original patch.

I shall never forget the summer of 1930. I had prospects for a bumper crop of berries considering the size of the patch, but anthracnose is a curious disease. It attacks the young canes, producing small, purplish spots, which later turn gray or dirty white in the centers. These spots eventually run together, often encircling the cane and thereby cutting off the sap supply. The canes in an effort to heal the wounds become rough, and sometimes they crack. While the disease may not kill the plants, it certainly reduces the berry crop. Diseased plants may produce a quantity of blossoms in the spring and all indications would point to a maximum crop of fruit, but about the time that the berries should begin to turn red they invariably darken and dry up on the vines. This was my experience in the summer of 1930. A third or more of the crop dried up. The remainder, however, took on a reddish hue, a sure indication that the days of harvest were near at hand.

And then the Robins came! The Robins, I may say, had been on the premises all spring but, naturally, they had paid no particular attention to the berry patch. A pair of them had reared a brood of four fat youngsters, and these had for some time been shifting for themselves. The parent birds, at the time of the ripening of the raspberries, were busily engaged in caring for a second brood of five. The first brood had enjoyed the first days of life in a box placed especially for their parents in a poplar in front of the house. The second brood was being reared in a nest that was saddled on a horizontal limb of a hard maple that overhung a strawberry bed situated northwest of the raspberries. And how the parents did gorge those young Robins with raspberries the moment they were ripe. The old birds, together with the four young from the first nest, literally lived in the patch. They had not bothered the strawberries to any extent except to wrench the side out of a plump one now and then, but previous to the ripening of the raspberries they had taken every cherry

from a small cherry tree east of the house. However, these were so wormy that they were unfit for use, so I did not complain. But I did grow a bit warm under the collar when they insisted on devouring every ripe raspberry on the place. I believe that those eleven Robins got a fourth of the crop. Loving almost all birds too well to destroy them, I tried a dozen different methods in an attempt to frighten them from the patch. But did I succeed? No! They were bold enough to help themselves to berries on vines but a few feet from me when I would be picking. Once, as the female adult Robin sat on one of the stakes to which the plants are tied, not more than ten feet from me, I snatched off a green berry and tossed it at her, taking her fairly alongside the head. She gave a saucy "kee-elp" and dived into a clump of raspberries and, appearing a moment later with a ripe berry, she winged her way towards the nest in the hard maple.

They were as painstaking at times as a connoisseur examining a work of art. Damaged berries left in the patch were proof of the fact that the birds were critical when it came to the sense of taste. I usually refrained from picking until the dew was off the berries, but the Robins did not wait, and when I appeared they had, as a rule, retired for the day, leaving me a few ripe and near-ripe berries, and not a few mutilated ones. I have often wondered if the young Robins ever had a change of diet while the raspberry season lasted. I doubt it.

A Wood Thrush or so, several pairs of which I have with me each summer, cousins of the Robins, also sampled the raspberries from time to time but they, I would say, served them as dessert; the Robins seemed to place them at the head of their bill of fare. A few Chewinks visited the patch, and twittered joyously over the deliciousness of the dark, wholesome fruit but they, thicket loving birds that they are, loved more, I believe, the shelter and protection that the bushy brambles afforded them.

As stated earlier, I had learned to control diseases, so the next summer, 1931, saw a full crop of raspberries. I do not believe that I lost a quart from anthracnose. But harder than all to understand, though I had the Robins again, nine in number this time, I am sure that I did not lose a pint of berries on their account. Why? A few Chewinks and a Wood Thrush came to feast occasionally, but the Robins, I am sure, gave little thought to the fruit which they, or others like them, had gone wild over the summer before.

GREENSBURG, IND.

ORNITHOLOGICAL REMINISCENCES OF MID-VICTORIAN WASHINGTON

BY MORRIS M. GREEN

These notes are written by one, who, in his teens, was an underling in the Division of Economic Ornithology and Mammalogy, in its pioneer days in our national capital, in the eighties of our last century. At that time, the A. O. U. and its organ, the *Auk*, were quite young, as were also the Biological Society and the Cosmos Club of Washington. There were many chances for an observer to catch thrilling glimpses of the great and future greats of American ornithology, as they dashed in and out of the capital, like birds of passage themselves.

Elliott Coues, a most *distingué* man, with patriarchal beard, flashing eyes, and a frock coat, was passing from the stage. America's far west was then unexplored, hence positions as surgeons in frontier army posts were much appreciated by ambitious pioneers in zoology. Coues, Shufeldt, Merrill, Mearns, all army surgeons, radiated from Washington to make history in the west. Likewise went Captain Bendire, U. S. A., with a charming Teutonic brogue and a bald head that offered no hope to scalping Apaches in Arizona.

Colonel N. S. Goss, tall and straight as a lodgepole pine, occasionally breezed east from the Kansas plains to ensure that things were not "all quiet on the Potomac." Henry W. Henshaw, from western excursions of the U. S. Geological Survey, brought many feathered treasures back to Washington. In the quaint old Smithsonian building Robert Ridgway worked as quietly and as wisely, with brother John as an artistic aid, as the Barn Owls in the tower.

From Boston came William Brewster, the beau ideal of the gentleman and scholar in science; also Charles B. Cory, like an exuberant school boy, off on a joyous lark.

Washington and its suburbs were then unspoiled by the "machine age". Rock Creek was primitive and it was legal for a young collector to carry a pocket shotgun in his sleeve and dead warblers in the crown of a derby hat.

Dr. A. K. Fisher was making a fine collection of local birds, when not dissecting hawks' stomachs. The advertisement—"Body by Fisher" —so often seen today in magazines, suggests, to me, not a machine, but a beautifully molded study skin of a bird, wrapped to produce most life-like curves, by Dr. Fisher.

The patriarchs in Washington, then, were talking of a promising novice in New York, named Frank M. Chapman. In Washington, a high school student, C. W. Richmond, by name, was making wistful calls at the Smithsonian and the Agricultural Department, seeking precious light.

Leaving Washington to enter Cornell University, in 1890, my life there promised to be as tranquil as the trill of a field sparrow on a summer day.

But at Ithaca, a professor's son, whose initials were L. A. F., asked me to give him confidential instruction in skinning birds and obtaining bird books, because his father did not desire him to be a naturalist! So runs the world away!

ARDMORE, PA.

A MENSURAL STUDY OF A COLLECTION OF GRUS CANADENSIS FROM IOWA AND NEBRASKA

BY PHILIP A. DU MONT

In view of the fact that the measurements, as recorded for *Grus canadensis canadensis* (Linnaeus) and *Grus canadensis tabida* (Peters) by most authors, show a rather marked degree of differentiation, it seems advisable to place on record the results of a study of twenty-eight specimens contained in the collection of the Museum of Natural History, University of Iowa. I believe these measurements indicate more nearly the slight differences between these forms, as found in specimens taken through the Missouri River Valley region during migration. This intergradation, therefore, confirms the opinion of Oberholser[1] and Hartert[2], who accorded them subspecific rank.

Grinnell[3] took a series of measurements of museum material totaling 107 specimens almost impartially divided between *canadensis* and *tabida*. The outstanding result of this scrutiny was the complete intergradation of the two races. He found that a plot of wing dimensions showed less division than did that of the tarsus.

In the determination of this material at hand, I have used the factors of wing length and extent of exposed culmen, and, at least for this area, these seem to suffice as subspecific characters.

While the measurements of wing, exposed culmen, culmen from nostril, depth of culmen at base, and length of middle toe (without

[1] *Auk*, XXXVIII, 1921, pp. 80-82.
[2] Vog. Pal. Faun. 3, 1921, p. 1818.
[3] Univ. Calif. Bull. Dept. Sci., Vol. 15, 1925, pp. 318-320.

Grus canadensis canadensis (Linnaeus)

Museum No.	Locality	Date	Sex	Wing	Exp. Cul.	From Nostril	Depth at Base	Tarsus	Bare Tibia	Middle Toe	Tail
6259	Gothenburg, Nebr.	November 29, ——	♂	17.60	3.95	2.75	.98	7.00	2.90	2.82	6.25
5206	Whiting, Iowa	April 18, 1886	♂	19.00	3.70	2.40	.93	7.75	2.90	2.96	6.90
6256	Holly Springs, Iowa	April 8, 1887	♂	19.25	4.10	2.90	.98	7.15	2.80	2.85	6.50
5222	Holly Springs, Iowa	April 18, 1887	♂	19.50	4.24	2.88	1.01	8.75	3.20	3.28	6.40
5215	Holly Springs, Iowa	April 8, 1887	♂	19.70	3.92	2.78	.99	6.50	2.50	2.94	6.00
5201	Whiting, Iowa	April 9, ——	♂	19.80	3.95	2.60	.93	8.00	3.40	3.20	7.20
5211	Holly Springs, Iowa	April 8, ——	♂	19.90	4.38	2.95	.98	8.50	3.30	3.08	6.60
6260	Gothenburg, Nebr.	November 26, ——	♂	20.00	4.04	2.65	1.02	8.75	2.90	2.84	7.00
6255	Sloan, Iowa	No date	♂	20.10	4.28	2.72	.98	9.00	4.00	3.38	6.75
6252	Whiting, Iowa	April 9, 1886	♂	20.20	4.00	2.61	.96	8.50	3.60	3.20	7.00
5223	Elm Creek, Nebr.	November 10, 1886	♂	20.25	4.20	2.88	.88	7.75	3.00	3.14	7.25
5364	Holly Springs, Iowa	April 8, 1887	♂	20.30	4.40	2.92	.99	8.75	3.70	3.26	7.00
5209	Sloan, Iowa	April 28, 1884	?	19.50	4.24	2.70	.97	8.25	3.70	3.10	6.10
5204	Sloan, Iowa	No date	[♀]	17.00	3.38	2.22	.87	7.00	2.90	2.65	5.50
6258	Holly Springs, Iowa	April 8, 1887	♀	17.70	3.74	2.15	.88	6.00	2.80	2.71	6.60
5212	Kearney, Nebr.	April 11, 1886	♀	18.00	3.58	2.50	.88	6.50	2.50	2.58	6.00
6251	Holly Springs, Iowa	April 11, 1887	♀	18.50	4.05	2.80	.95	8.00	3.50	3.25	6.80
5366	Gothenburg, Nebr.	November 29, ——	♀	19.75	4.08	2.82	.97	8.25	3.60	3.09	6.90
5365	Whiting, Iowa	April 6, 1886	♀	19.80	4.04	2.72	1.01	8.25	4.10	3.30	6.50
5207	Plum Creek, Nebr.	November 10, 1885	♀	19.90	4.25	2.86	1.02	8.75	3.70	2.75	7.00
6257	Elm Creek, Nebr.	November 10, 1886	♀	20.25	4.30	2.95	.99	8.90	3.80	3.37	7.50
5221	Elm Creek, Nebr.	November 5, 1884	♀	20.40	4.27	3.02	1.00	8.25	4.00	3.38	7.00

Grus canadensis tabida (Peters)

Museum No.	Locality	Date	Sex	Wing	Exp. Cul.	From Nostril	Depth at Base	Tarsus	Bare Tibia	Middle Toe	Tail
5199	Holly Springs, Iowa	April 18, 1887	♂	20.40	4.78	3.32	1.08	9.25	3.80	3.38	6.70
5363	Whiting, Iowa	April 12, 1886	♂	20.70	4.92	3.26	1.04	8.50	3.70	3.34	7.00
5200	Woodbury Co., Iowa	[1]March 14, 1891	♂	21.00	4.95	3.10	1.09	8.25	4.00	3.50	7.10
5224	Wolf Creek, Nebr.	April 4, ——	♂	21.10	4.85	3.11	1.04	9.60	4.10	3.58	6.20
5225	No record	No date	[♂]	21.50	5.18	3.38	1.06	9.50	4.10	3.38	7.75
5202	Wood River, Nebr.	October 23, 1884	♀	20.25	4.75	3.19	1.03	8.60	3.80	3.28	6.60

[1]Died in captivity.

claw) proved to be tangible factors for determination between *G. c. canadensis* and *G. c. tabida* the measurements of tarsi, exposed portion of tibia, and length of tail so overlapped as to be of little value.

These specimens were secured for D. H. Talbot, of Sioux City, by his collectors at Holly Springs and Sloan, Woodbury County, and Whiting, Monona County, Iowa, during 1884-'86-'87; and at Kearney and Elm Creek, Buffalo County, Gothenburg, Dawson County, Plum Creek and Wolf Creek, Nebraska, during April and November 1884-'85-'86-'87.

It is impossible to say whether this material represents the approximate proportion of these two species as they formerly existed in migration through the Missouri River Valley, or whether a special effort was made by the Talbot collectors to secure a series of the Little Brown Crane.

The folowing ranges of measurements in inches for the two forms are based on the specimens as listed in the table below.

Grus canadensis canadensis (Linnaeus)

Twelve males. Wing (measured along the arc, with a tape, 17.60 to 20.30; exposed culmen, 3.70 to 4.40; depth of culmen at base, .93 to 1.02; bill from nostril, 2.40 to 2.95; tarsus, 6.50 to 9.00; exposed portion of tibia, 2.50 to 4.00; length of middle toe (without claw), 2.82 to 3.38; length of tail, 6.00 to 7.25.

Eight females. Wing, 17.70 to 20.40; exposed culmen, 3.58 to 4.30; depth of culmen at base, .88 to 1.02; bill from nostril, 2.15 to 3.02; tarsus, 6.00 to 8.90; exposed portion of tibia, 2.50 to 4.10; length of middle toe, 2.58 to 3.38; length of tail, 6.00 to 7.50.

Grus canadensis tabida (Peters)

Five males. Wing, 20.40 to 21.50; exposed culmen, 4.78 to 5.18; depth of culmen at base, 1.04 to 1.09; bill from nostril, 3.10 to 3.38; tarsus, 8.25 to 9.60; exposed portion of tibia, 3.70 to 4.10; length of middle toe, 3.34 to 3.58; length of tail, 6.20 to 7.75.

One female. Wing, 20.25; exposed culmen, 4.75; depth of culmen at base, 1.03; bill from nostril, 3.19; tarsus, 8.60; exposed portion of tibia, 3.80; length of middle toe, 3.28; length of tail, 6.60.

Museum of Natural History, University of Iowa,
Iowa City, Iowa.

NOTES ON THE BIRDS FOUND AT LAKE JOHNSTON AND LAST MOUNTAIN LAKE, SASKATCHEWAN, DURING APRIL AND MAY, 1922

BY C. G. HARROLD

CYRIL GUY HARROLD (1895-1929) died in New York on February 4, 1929, on the eve of his departure for Madagascar as one of the ornithologists to the joint British, American, and Paris Museums' Expedition. (Obituary notices appeared in the *Auk*, Vol. XLVI, April, 1929, p. 285, and the *Canadian Field Naturalist*, Vol. XLIII, Sept., 1929, pp. 132-3).

Recently, through the courtesy of Mr. A. P. Harrold of Tofield, Alta., certain field books and mss. have come into the writer's possession. Of these, the following notes were evidently prepared for publication in 1922 but withheld for some reason which we cannot now ascertain. The principal results of this collecting trip were communicated by C. G. Harrold to H. Hedley Mitchell and incorporated by him in the "Catalogue of the Birds of Saskatchewan" (*Can. Field Nat.*, Vol. XXXVIII, Spec. No., No. 6, pp. 101-119, May, 1924).

In preparing the notes for publication at this time, the new arrangement of the 1931 A. O. U. Check-List has been followed. Where any doubt remained as to subspecies, identification has been left open.

Most of the species mentioned are represented by specimens collected, but in editing the notes it was thought advisable to delete the Greater Snow Goose (*Chen hyperborea atlantica*) which Harrold included on the basis of a sight record on May 5 at Lake Johnston.

The work of correcting the names to accord with the new check-list, arrangement, and typing the manuscript, was all done by Mr. R. D. Harris of Winnipeg, whose help is gratefully acknowledged.—B. W. CARTWRIGHT, *Winnipeg, Man.*

Lake Johnston is situated about thirty miles south of Moose Jaw in a rolling, prairie country, practically treeless and dotted everywhere with sloughs of varying size. On the east side of the lake, about ten miles northwest of Expanse, the high ground comes right up to the lakeshore, forming a cliff about a mile in length and having a mean height of about 120 feet. This cliff is quite precipitous at some points, at others it slopes gently down to the shore. Although the surrounding country is open prairie, a large portion of the face of this cliff is thickly covered with shrubs of many kinds, including chokecherry, pincherry, saskatoon, gooseberry, etc., also willows and small poplars. These afford excellent cover for small birds such at nuthatches, warblers, vireos, and sparrows of various kinds. To either side of this ridge, the shore consists of swampy meadows and small mud bars, where many geese, ducks, and waders may be found during their respective migration seasons. The lake, which is over fifty miles in circumference, is very shallow, being less than six feet deep a mile and half from shore. This makes an excellent feeding ground for the swans, which gather here in numbers on their way north in the spring. Pelicans and cormorants were also common, nesting in colonies on an island which lies about five miles from the east shore of the lake.

The first half of May was very cold, with sleet and snow at intervals. The wind was north for the greater part of the first ten days, consequently holding back some of the small migrants.

HORNED GREBE. *Colymbus auritus.* First seen May 18. Several seen since that date but this species does not appear to be as common in southern Saskatchewan as it is farther east. (Lake Johnston).

WESTERN GREBE. *Aechmophorus occidentalis.* First seen May 14. Quite plentiful from this date till May 29, preferring the large lake to the smaller sloughs. (Lake Johnston).

WHITE PELICAN. *Pelecanus erythrorhynchos.* First seen May 4. Plentiful at Lake Johnston during May.

DOUBLE-CRESTED CORMORANT. *Phalacrocorax auritus auritus.* First seen May 10. Only a few individuals seen after this date.

GREAT BLUE HERON. *Ardea herodias herodias.* First seen May 4. Common from May 9 till end of month.

AMERICAN BITTERN. *Botaurus lentiginosus.* The only specimens seen were two individuals on May 14.

WHISTLING SWAN. *Cygnus columbianus.* First seen May 1. Very plentiful from 1st to 8th. Last seen May 13.

CANADA GOOSE. *Branta canadensis canadensis.* First seen May 1. Common till May 8. Several pairs remained to nest along east shore of lake.

HUTCHINS'S GOOSE. *Branta canadensis hutchinsi.* None seen at Lake Johnston. Party of eleven seen on Last Mountain Lake on April 28.

WHITE-FRONTED GOOSE. *Anser albifrons albifrons.* Only one seen at Lake Johnston on May 4. Flock of five seen flying north along west shore of Last Mountain Lake on April 26.

LESSER SNOW GOOSE. *Chen hyperborea hyperborea.* First seen May 1. Abundant till May 12, migrating in flocks containing from ten to fifty birds. (Lake Johnston).

COMMON MALLARD. *Anas platyrhynchos platyrhynchos.* First seen May 1. Plentiful on migration on Lake Johnston and nesting around sloughs in this district.

GADWALL. *Chaulelasmus streperus.* First seen on May 6. Very common during May both on the open lake and also in the sloughs. No nests were found, although I feel certain this species nests in the locality.

BALDPATE. *Mareca americana.* First seen May 3. Abundant for two weeks after this date; usually seen in pairs.

AMERICAN PINTAIL. *Dafila acuta tzitzihoa.* First seen May 1. Common on migration till May 9, also summer resident, several nests being found.

GREEN-WINGED TEAL. *Nettion carolinense.* First seen May 3. Common but not so plentiful as the Bluewing. Quite numerous between May 9 and 20.

BLUE-WINGED TEAL. *Querquedula discors.* First seen May 3. Very common till end of May.

SHOVELLER. *Spatula clypeata.* First seen May 1. Numerous till about May 15. One nest was found containing seven eggs on May 18.

REDHEAD. *Nyroca americana.* First seen May 8. Not nearly so common as the Canvas-back. Only a few flocks seen during the rest of the month.

CANVAS-BACK. *Nyroca valisineria.* First seen May 1. A very common migrant at Lake Johnston during May. Also apparently nesting, although I did not actually find the nest.

LESSER SCAUP DUCK. *Nyroca affinis.* First seen May 1. Not very plentiful at this point, only odd flocks being seen at intervals after this date.

AMERICAN GOLDEN-EYE. *Glaucionetta clangula americana.* First seen May 5. Only about half a dozen individuals noted during my stay at Lake Johnston. One male picked up unable to fly although apparently uninjured.

BUFFLE-HEAD. *Charitonetta albeola.* First seen May 19. Several pairs seen on sloughs toward the end of the month.

WHITE-WINGED SCOTER. *Melanitta deglandi.* First seen May 19. A common migrant usually seen in small parties some distance from shore.

RUDDY DUCK. *Erismatura jamaicensis rubida.* First seen May 23. On this date a flock of about fifteen were seen on Lake Johnston but no more seen afterwards.

AMERICAN MERGANSER. *Mergus merganser americanus.* April 26, Last Mountain Lake. First seen at Lake Johnston on May 7. Fairly common for two weeks after this date; seen in pairs or small parties.

SHARP-SHINNED HAWK. *Accipiter velox velox.* First seen May 9. Migrants fairly numerous till May 18, generally being seen hunting for small birds along the lakeshore.

WESTERN RED-TAILED HAWK. *Buteo borealis calurus.* First seen May 7. Not very common but individuals seen every day during remainder of May. One nest found in poplar six feet from ground containing one egg on May 14.

SWAINSON'S HAWK. *Buteo swainsoni.* Only one specimen seen on May 24.

AMERICAN ROUGH-LEGGED HAWK. *Buteo lagopus s.-johannis.* First seen May 22. Four more seen between this date and end of month.

FERRUGINOUS ROUGH-LEG. *Buteo regalis.* One seen on May 20.

NORTHERN BALD EAGLE. *Haliaeetus leucocephalus alascanus.* One immature specimen found at foot of telephone pole, evidently shot, on May 15.

MARSH HAWK. *Circus hudsonius.* First seen May 2. Common summer resident. One nest found, containing three eggs, on May 18.

OSPREY. *Pandion haliaetus carolinensis.* First seen May 2. Also seen on May 9 and 13—probably the same bird.

PRAIRIE FALCON. *Falco mexicanus.* First seen May 18. Several seen during the following week.

DUCK HAWK. *Falco peregrinus anatum.* First seen May 2. Several pairs seen along the shore during May. The stomach of a specimen obtained contained two Northern Phalaropes.

PIGEON HAWK. *Falco columbarius.* One seen on May 14 was the only one identified.

EASTERN SPARROW HAWK. *Falco sparverius sparverius.* First seen May 8. About a dozen individuals seen during the month of May. One pair nested at "The Cutbanks."

GREATER PRAIRIE CHICKEN. *Tympanuchus cupido americanus.* Two seen in a party of sharptails were the only ones identified, although several more were heard.

PRAIRIE SHARP-TAILED GROUSE. *Pedioecetes phasianellus campestris.* Fairly common in the district chiefly near the lake. Still in flocks till end of May.

SANDHILL CRANE. *Grus canadensis tabida.* Party of nine on May 10 were the only ones seen.

SORA. *Porzana carolina.* One specimen seen on May 15.

AMERICAN COOT. *Fulica americana americana.* First seen May 9. Only a few individuals seen during the remainder of the month.

PIPING PLOVER. *Charadrius melodus.* Party of three seen on May 7 were only specimens seen at Lake Johnston.

Semipalmated Plover. *Charadrius semipalmatus.* First seen May 15. A party of four seen on this date were only ones noted.

Killdeer. *Oxyechus vociferus vociferus.* First seen May 1. The main migration had passed, and those seen after this date evidently intended staying to nest.

American Golden Plover. *Pluvialis dominica dominica.* First seen May 11. After this only three flocks were seen, the last being on May 16. Very few showed full spring plumage.

Black-bellied Plover. *Squatarola squatarola.* First seen May 11, when a flock composed partly of Golden and partly of black-bellies was seen. Only a few individuals seen after this date, last one being on May 17.

Wilson's Snipe. *Capella delicata.* First seen May 6. Not very plentiful, only a few specimens being seen between this date and May 20.

Long-billed Curlew. *Numenius americanus americanus.* One specimen seen on May 9 was only example noted. This was with a party of Marbled Godwits.

Upland Plover. *Bartramia longicauda.* First seen May 8.

Spotted Sandpiper. *Actitis macularia.* First seen May 10. Odd pairs seen almost every day till end of month.

Solitary Sandpiper. *Tringa solitaria.* First seen May 7. Common from May 11 to May 16 around small sloughs; none seen on the lakeshore.

Western Willet. *Catoptrophorus semipalmatus inornatus.* First seen May 3. Common during rest of month; usually seen in pairs and probably summer resident here.

Lesser Yellowlegs. *Totanus flavipes.* First seen May 8. A common but by no means abundant migrant till May 15.

Pectoral Sandpiper. *Pisobia melanotos.* First seen May 10. Common migrant till May 18, moving in small flocks.

Baird's Sandpiper. *Pisobia bairdi.* First seen May 2. Very common both around sloughs and on the lakeshore till May 14.

Least Sandpiper. *Pisobia minutilla.* First seen May 2. Apparently not very numerous in this locality but several parties were noted between May 3 and 10.

Dowitcher. *Limnodromus griseus.* First seen May 10. Migrated in parties, also in company with Pectoral Sandpipers. Last seen May 16.

STILT SANDPIPER. *Micropalama himantopus.* One male was seen on May 11 feeding in company with Baird's Sandpipers by a slough. My experience is that this species is usually to be found in company with Lesser Yellowlegs.

SEMIPALMATED SANDPIPER. *Ereunetes pusillus.* First seen May 4. An abundant migrant between May 4 and May 12, usually seen in company with Baird's or Least Sandpipers.

BUFF-BREASTED SANDPIPER. *Tryngites subruficollis.* Party of about fifteen seen on May 23 on ploughed land about one and a half miles from the lake. They rise from the ground almost with the speed of a Wilson's Snipe.

MARBLED GODWIT. *Limosa fedoa.* First seen May 3. Common during the remainder of the month and no doubt nesting, as individuals were so tame you could approach within fifteen yards of them.

SANDERLING. *Crocethia alba.* One specimen seen on May 8 and three on May 9 were the only examples noted.

AVOCET. *Recurvirostra americana.* First seen May 15. Next specimen seen on May 23. From this date till end of month they were fairly common on the alkaline sloughs, showing a distinct preference for these ponds.

WILSON'S PHALAROPE. *Steganopus tricolor.* First seen May 13. This is apparently a summer resident in the district. Very few seen on migration; usually in pairs. One party of twelve birds were seen.

NORTHERN PHALAROPE. *Lobipes lobatus.* First seen May 17. For the ten days following this date they were very abundant. On May 20, I counted no fewer than sixty-one flocks passing south along the east shore of Lake Johnston in five minutes (7:10 A. M. to 7:15 A. M.). There were about thirty to fifty birds in a flock on the average.

CALIFORNIA GULL. *Larus californicus.* First seen May 1 and no doubt had arrived several days before this date. A very common gull along the shores of Lake Johnston. All specimens seen (with one exception) were in adult plumage.

RING-BILLED GULL. *Larus delawarensis.* First seen May 1. Plentiful for three weeks after this date. Practically all seen were in adult plumage.

FRANKLIN'S GULL. *Larus pipixcan.* First seen April 26 (Last Mountain Lake). Large migration along east shore of Lake Johnston every evening from May 10 to May 21 in parties of from five to twenty-five.

COMMON TERN. *Sterna hirundo hirundo.* First noted May 17. Common from this date till end of month.

Black Tern. *Chlidonias nigra surinamensis.* First seen May 21. Plentiful around sloughs till May 29.

Western Mourning Dove. *Zenaidura macroura marginella.* First seen May 11. Not very plentiful. Odd birds seen almost every day till end of month.

Snowy Owl. *Nyctea nyctea.* One seen on May 2 on the ice on Lake Johnston.

Western Burrowing Owl. *Speotyto cunicularia hypugaea.* First seen May 17. Only one pair found nesting in deserted badger den. Nest contained ten eggs, also five field mice, two garter snakes, and one immature salamander. One of the mice was an albino, having pale pinkish colored feet.

Long-eared Owl. *Asio wilsonianus.* Several long-ears were seen on May 8 and the species was fairly common for several days; apparently following the small bird migration. Last seen May 16.

Nighthawk. *Chordeiles minor.* One seen flying over at a great height on May 21.

Northern Flicker. *Colaptes auratus luteus.* Two seen on a telegraph pole on May 10 at Dunkirk.

Eastern Kingbird. *Tyrannus tyrannus.* First seen May 11. Several pairs apparently staying to nest at "The Cutbanks" were the only ones seen.

Say's Phoebe. *Sayornis saya saya.* First seen May 6. A common migrant till May 11. One cold stormy day they were seen taking insects off the weeds washed up along the shore in company with the Least Flycatchers. Last noticed May 17.

Least Flycatcher. *Empidonax minimus.* First seen May 10. Plentiful till May 14, that is, for only two or three days, although I saw odd ones till end of month.

Prairie Horned Lark. *Otocoris alpestris praticola.* First seen May 2. Not very numerous during the month as no doubt the main migration had passed long before I arrived. One nest found containing three eggs on May 4.

Tree Swallow. *Iridoprocne bicolor.* First seen May 21. Several seen during following ten days.

Bank Swallow. *Riparia riparia riparia.* First seen May 16. Very common over sloughs on the 19th. Summer resident.

Barn Swallow. *Hirundo erythrogaster.* One seen on May 27.

Northern Cliff Swallow. *Petrochelidon albifrons albifrons.* First seen May 19. Plentiful around sloughs for several days after this date.

PURPLE MARTIN. *Progne subis subis.* Several seen on May 22 flying over slough with Cliff Swallows .

AMERICAN MAGPIE. *Pica pica hudsonia.* One individual seen on May 1.

CROW. *Corvus brachyrhynchos* subsp. About half a dozen pairs nested in small trees along the shore.

LONG-TAILED CHICKADEE. *Penthestes atricapillus septentrionalis.* One pair seen on May 17.

RED-BREASTED NUTHATCH. *Sitta canadensis.* First seen May 5. Fairly common migrant till May 15. Found among willows on lakeshore.

WESTERN HOUSE WREN. *Troglodytes aedon parkmani.* First seen May 14. Only five or six individuals seen during remainder of month.

EASTERN WINTER WREN. *Nannus hiemalis hiemalis.* Two seen on May 12.

CATBIRD. *Dumetella carolinensis.* First seen May 18. Apparently a few pairs remain to nest in the thick bush along the shore.

BROWN THRASHER. *Toxostoma rufum.* First seen May 22. On May 24 one was seen about 500 yards from the nearest cover (except for a plough) on the open prairie. Several seen during last week in May in bushes along the shore.

EASTERN ROBIN. *Turdus migratorius migratorius.* A pair seen in a village about ten miles from Lake Johnston on May 9.

EASTERN HERMIT THRUSH. *Hylocichla guttata faxoni.* First seen May 11. Very common for several days, especially May 14. Last seen May 20.

OLIVE-BACKED THRUSH. *Hylocichla ustulata swainsoni.* First seen May 13. Fairly numerous till May 18. One seen on May 24.

WILLOW THRUSH. *Hylocichla fuscescens salicicola.* First seen May 21. Another heard singing on May 27. These were the only ones noted.

EASTERN BLUEBIRD. *Sialia sialis sialis.* A female seen on May 19 was only one noted.

MOUNTAIN BLUEBIRD. *Sialia currucoides.* Although I did not observe any personally, residents informed me that this species is quite common on migration in April.

EASTERN GOLDEN-CROWNED KINGLET. *Regulus satrapa satrapa.* A pair of this species was seen in the choke cherry bushes along the lakeshore on May 14.

AMERICAN PIPIT. *Anthus spinoletta rubescens.* Only one specimen was noted on May 4. Probably the northward migration had passed by this time.

Sprague's Pipit. *Anthus spraguei.* First seen May 8. Very common till May 20. Apparently nests at this point. Each individual of this species migrates separately, flying about fifty yards from the ground and uttering a double note at intervals very similar to the alarm note of the Barn Swallow.

Bohemian Waxwing. *Bombycilla garrula pallidiceps.* One seen during a sleet storm on May 2.

White-rumped Shrike. *Lanius ludovicianus excubitorides.* One specimen seen on May 17.

Red-eyed Vireo. *Vireo olivaceus.* First seen May 17. Very numerous in bushes along the lakeshore till end of month.

Eastern Warbling Vireo. *Vireo gilvus gilvus.* First seen May 21. Several seen and heard after this date.

Black and White Warbler. *Mniotilta varia.* First seen May 12. The only ones seen after this were two on May 14.

Orange-crowned Warbler. *Vermivora celata celata.* First seen May 6. Very plentiful on May 8 and 9. Last seen May 16.

Eastern Yellow Warbler. *Dendroica aestiva aestiva.* First seen May 11. Abundant from this date till end of month.

Magnolia Warbler. *Dendroica magnolia.* One male seen on May 15 was the only one identified.

Myrtle Warbler. *Dendroica coronata.* One seen on May 6. Common from 8th to 10th. Last seen May 19.

Blackburnian Warbler. *Dendroica fusca.* One male seen and heard singing on May 20.

Black-poll Warbler. *Dendroica striata.* First seen May 14. Very common till May 18. Last seen May 23.

Western Palm Warbler. *Dendroica palmarum palmarum.* One specimen seen on May 15.

Water-Thrush. *Seiurus noveboracensis* subsp. First seen May 11. A few odd ones noted during the next few days; last seen May 16.

Mourning Warbler. *Oporornis philadelphia.* One male seen on May 25 was the only specimen noted.

Yellow-throat. *Geothlypis trichas occidentalis.* First seen May 14. Several seen during following week in scrub along lakeshore.

American Redstart. *Setophaga ruticilla.* First seen May 26. Two more seen on the 28th.

Western Meadowlark. *Sturnella neglecta.* First seen May 1. Common summer resident.

YELLOW-HEADED BLACKBIRD. *Xanthocephalus xanthocephalus.* First seen May 7. Plentiful on migration for about a week. Apparently none stayed to nest at this point. Last seen May 19.

GIANT REDWING. *Agelaius phoeniceus arctolegus.* Common summer resident.

BALTIMORE ORIOLE. *Icterus galbula.* First seen May 21. Fairly numerous till end of month.

BREWER'S BLACKBIRD. *Euphagus cyanocephalus.* First seen May 2. Am uncertain as to the abundance of this blackbird on account of the difficulty of distinguishing it from the Rusty Blackbird in the field. Did not identify the rusty with certainty.

BRONZED GRACKLE. *Quiscalus quiscula aeneus.* Several pairs seen during the month.

NEVADA COWBIRD. *Molothrus ater artemisiae.* First seen May 9. Common from May 14 to 20 and a few seen every day till end of month.

ROSE-BREASTED GROSBEAK. *Hedymeles ludovicianus.* First seen May 12. Apparently a summer resident at this point.

ROCKY MOUNTAIN GROSBEAK. *Hedymeles melanocephalus papago.* A male was seen on May 15. Its song is loud, clear, and rather Robin-like in character, but unlike that of the lattter bird it is repeated without variation, and at intervals of about thirty seconds.

REDPOLL. *Acanthis linaria* subsp. One flock flying high on May 3.

PALE GOLDFINCH. *Spinus tristis pallidus.* First seen May 23. Abundant after this date till I left.

ARCTIC TOWHEE. *Pipilo maculatus arcticus.* First seen May 8. Several noted during week following. Not common.

SAVANNAH SPARROW. *Passerculus sandwichenis* subsp.* First seen May 4. Abundant summer resident.

WESTERN GRASSHOPPER SPARROW. *Ammodramus savannarum bimaculatus.* One male seen on May 16, on the lakeshore.

BAIRD'S SPARROW. *Ammodramus bairdi.* First seen May 17. Common summer resident. A pair could be found at the edge of almost every slough.

WESTERN VESPER SPARROW. *Pooecetes gramineus confinis.* First seen May 7. Not very plentiful on migration, only a few individuals being seen about the middle of the month.

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*Taverner (Proc. Biol. Soc. Wash., Vol. 45, 1932, pp. 201-206) has proposed the subspecific name *campestris* for this race.—B. W. C.

Slate-colored Junco. *Junco hyemalis hyemalis.* Two seen on May 3.

Tree Sparrow. *Spizella arborea* subsp. A party of five seen on May 2.

Eastern Chipping Sparrow. *Spizella passerina passerina.* First seen May 8. Abundant on May 14 and 15. Individuals seen till end of month.

Clay-colored Sparrow. *Spizella pallida.* First seen May 8. Very abundant till May 17 on migration. Also common summer resident.

Brewer's Sparrow. *Spizella breweri breweri.* One on May 16 was only specimen seen. Its song is a weak, disconnected series of notes, somewhat suggesting the song of the Long-billed Marsh Wren but not so loud.

Harris's Sparrow. *Zonotrichia querula.* First seen May 7. Plentiful on migration till May 13. Last seen May 15.

White-crowned Sparrow. *Zonotrichia leucophrys leucophrys.* First seen May 6. A large flight arrived on the 8th. Last seen May 11.

Gambel's Sparrow. *Zonotrichia leucophrys gambeli.* First seen May 6. Common till May 10. Last seen May 12.

White-throated Sparrow. *Zonotrichia albicollis.* First seen May 13. Very plentiful on May 15. One seen on May 20, but I doubt if this species nests here.

McCown's Longspur. *Rhynchophanes mccowni.* First seen May 19. Fairly common from May 20 to 26. Found chiefly in stubble fields on high ridges. The male has a remarkable butterfly-like flight, which is used in conjunction with the song, which consists of only a few notes, one of them having a peculiar squeaky sound quite unlike that of any other bird in tune.

Lapland Longspur. *Calcarius lapponicus.* May 1 (Lake Johnston). Last seen May 7. Huge flocks in flax fields near Liberty from April 26 to 30.

Chestnut-collared Longspur. *Calcarius ornatus.* First noted May 2. Very common summer resident, several nests being found.

Eastern Snow Bunting. *Plectrophenax nivalis nivalis.* One seen on the shore on May 16 was still in winter plumage. It was very tame, allowing me to approach within twelve feet of it.

Deer Lodge,
Winnipeg, Man.

THE WILSON BULLETIN

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EDITORIAL

THE COLUMBUS MEETING was held as scheduled. In spite of predicted success there was some fear that we could not countervail the throes of the depression. Nevertheless, a most successful meeting was held, with a splendid program and a splendid attendance. As would be expected, the attendance from distant points was small. However, it is doubtful if we have ever had as good attendance from the local state as Ohio provided at this meeting. The following five-year comparison is intended to show something of the status quo of our organization. These figures indicate many interesting facts, but they are results; and there are certain determining factors which they can show only by inference, for example, the enthusiasm, loyalty, and labor of the officers, and the splendid coöperation and coördination between them. It may be truly said that the Wilson Ornithological Club, as an organization, has never been in a stronger position than it is in at the present time. As the depression begins to lift we will look for surprising growth.

	Ann Arbor 1928	Des Moines 1929	Cleveland 1930	New Orleans 1931	Columbus 1932
Local attendance	31	106	41	11	92
Out of town attendance	75	96	122	81	65
Total atttendance	106	202	163	92	157
Dinner attendance	50	77	98	35	69
Titles on the program	24	36	33	27	35
Honorary members	4	9	7	7	7
Life members	0	5	7	7	10
Sustaining members	64	66	58	57	75
Active members	248	245	227	214	175
Associate members	383	397	479	461	469
Total membership	702	717	775	744	734
Pages in BULLETIN	274	272	312	334	256
Total income	$1981	$2167	$2451	$2686	$2191
Fiscal balance	$527	$530	$675	$731	$547

OFFICERS of the Biological Society of Washington have announced that "The International Rules of Zoological Nomenclature" (28 pp., paper, 1926) may now be obtained for 50 cents, by application to J. S. Wade, Secretary of the Society, U. S. Bureau of Entomology, Washington, D. C. Other papers on the birds of the District of Columbia have also been reduced in price.

THE PRESENT ISSUE of the BULLETIN is somewhat smaller than usual. This is merely a provision for safety, pending the uncertainty of income from dues. The magazine will be increased to full size, and more, just as soon as our income warrants it. Not a few other scientific periodicals have been curtailed in number of pages, even thus far this year. Practically all publishing societies are asking their members to do the best they can in paying dues promptly. In these uncertain times each one must decide for himself what his own circumstances will permit him to do toward the support of the societies to which he may belong. We are quite sure that our membership would strongly disapprove the allowance of any deficit in publication costs. Those of us who may be willing and able to pay dues in a higher class of membership may thus materially help to continue our publication through the present crisis. Most of us are optimistic enough to believe that our economic conditions will have greatly improved by the time another dues-paying season comes around.

UP TO THE PRESENT TIME only two designs for a library book plate have been submitted. The officers would like very much to be able to select from a collection of twenty or thirty designs. Some of our members who may not feel that they have artistic ability might, nevertheless, have ideas which could be worked into a design. So, we would encourage anyone to submit even a rough sketch of a book plate design, leaving it to the Committee to have it put in shape for reproduction. One of the designs now in hand is a drawing of a single species, the Long-eared Owl—species named for Alexander Wilson. Another design includes a field glass, a note book, and several other items in the paraphernalia of the bird student. What other symbol, or symbols, of bird study might be appropriately placed on our collection of books? We are very anxious that many more will offer their ideas for a book plate design before the final choice is made. The selected design should be wholly appropriate and satisfactory, since it may be in use for a long time—ten years or a hundred. Your ideas on paper, please!

Suggestions or designs may be sent directly to the W. O. C. Library, Museum of Zoology, Ann Arbor, Mich.

The American Association for the Advancement of Science has announced the following schedule of meetings, which may be of some interest to us in determining our own meetings.

1933.	Boston.	December 27 to January 2.
1934.	Pittsburgh.	December 27 to January 3.
1935.	St. Louis.	December 27 to January 2.
1936.	Washington.	December 28 to January 2.
1937.	Indianapolis.	December 27 to January 1.

Besides these regular winter meetings there will be summer meetings each year in other cities.

GENERAL NOTES

Conducted by M. H. Swenk

Record of the Starling in Arkansas: A Correction.—Regarding Mr. J. D. Black's reference to the January 25, 1930, record of the European Starling from Fayetteville, Arkansas (*antea*, p. 235), the record given in Arkansas Station Bulletin 258 (p. 129) states clearly that a specimen was taken. This specimen is now in the University collection and available for inspection. Mr. Black refers to this record as "a rather uncertain sight observation." I called it the first record because no other record of the Starling in Arkansas had at that time appeared in print.—W. J. Baerg, *University of Arkansas, Fayetteville, Ark.*

Some 1931 Middle Western Records of the Starling.—Several observations of the Starling (*Sturnus vulgaris*) were made recently in localities in middle western states. While none of these observations extend the known westward range of this species, yet they help in showing the increase of this bird along the western edge of its range, as determined at the present time. Although no specimens were taken, identification in each instance was satisfactory.

On September 27, 1931, six Starlings were seen three miles north of Toulon, Illinois. A flock of fourteen was seen September 28, 1931, ten miles north of Peoria, Illinois. On October 16, 1931, two were seen two miles north of Vinita, Oklahoma. A single Starling was seen with a flock of Red-winged Blackbirds about twenty miles south of Kansas City, near Lewisburg, Kansas, on October 17, 1931. One was seen October 17, 1931, ten miles southwest of Bethany, Missouri, near Pattonburg. A flock of eight was seen November 10, 1931, five miles west of Davenport, Iowa. On November 11, 1931, two miles south of Pana, Illinois, a large flock of at least 150 Starlings was seen. And a flock of twelve birds, November 12, 1931, at Muscle Shoals, near Sheffeld, Alabama.—Philip A. DuMont, *Iowa City, Iowa.*

Leconte's Sparrow at Toledo, Ohio.—On September 3, 1932, I was in a marsh along Maumee Bay, just north of the city limits of Toledo, Ohio, looking for Marsh Wrens, when my attention was attracted by a strange sparrow that landed on top of a cat-tail about fifty feet ahead of me. It was followed by two more birds of the same species. These two last birds sought the dense part of the cat-tail growth, and were soon lost to sight, but the first bird remained on top of the cat-tail, affording me an excellent view of it. I succeeded in approaching a little closer, and with the aid of a pair of 8-power glasses and the afternoon sun on my back I was able to carefully study this bird, which was undoubtedly a Leconte's Sparrow (*Passerherbulus caudacutus*). The broad buffy yellow line over each eye and the lighter buff line through the center of the dark crown stood out distinctly. The yellowish buff tinge on the breast and on the faintly streaked sides was also clearly visible. I got a good view of the bird's back when it turned around, which helped in its identification. Upon closer approach all three birds flew across the road into an adjacent marsh where I was unable to locate them. When the birds flew I got an excellent view of the tail. The feathers were narrow with the tips sharply pointed and the outer feathers were much shorter than the center ones. This bird is very rare in Ohio, as far as I know there being only one previous record (Revised List of the Birds of Ohio, M. B. Trautman, 1932).—John H. Ritter, *Dayton, Ohio.*

The Calls of the Barred Owl.—I have seen the Barred Owl (*Strix varia varia*) occasionally but never have heard it "sing" or in a debate, until last spring when in southern Indiana at the home of Mr. and Mrs. Cleo Wesner of Campbellsburg. In that part of the state there are many interesting species of birds, including the Barred and the Great Horned Owls. The Bald Eagle is occasional, (they caught one in a trap), and there are present several members of the heron family; the Whip-poor-will; rare warblers, including the Swainson Warbler (which nests there) and the Kentucky Warbler; the Summer Tanager, which is very common; the Black Vulture; and many other species of birds, including seven species of the woodpecker family, the rarest being the Pileated Woodpecker. But the doings of the Barred Owl were something new to me. They had told us of its "oratory", and when supper was over after dark, I was called to the yard to listen to two Barred Owls having a debate. First one would talk, then the other, arguing and explaining all the while, but in a muffled voice not quite understood by the visiting audience. Then they would say something, perhaps a joke or something very clever and to the point, and this would be followed by the loudest maniacal laughter one could imagine. When this was over, they would resume their argument and again discuss various things which we could not understand. To one listening to such conversation for the first time, it was most interesting and impressive. The birds were a short distance back of the house it seemed, in a ravine at the foot of a wooded hill. Finally the discourse died down and the debate was possibly settled to the satisfaction of at least one of the contestants. That entertainment alone paid us for the trip; but during the night someone tapped on our door calling softly, "Are you awake? Listen to the Whip-poor-wills." But I was already listening with both ears. The hills of southern Indiana are most beautiful and a natural paradise for birds.—Mrs. Horace P. Cook, *Anderson, Ind.*

Late Nestings.—Four instances of late nesting, three of them in Knox County, Illinois, came to the writer's attention this year (1932). A pair of Eastern Field Sparrows (*Spizella pusilla pusilla*) had three half-grown young in a nest August 26, while on September 4 two fledgling Eastern Mourning Doves (*Zenaidura macroura carolinensis*) were on the point of leaving their natal home. The thirty-day period for shooting the latter species in Illinois opens September 1, although nests with eggs or young in mid-August are not of extremely rare occurrence. Whether or not toll is taken to such extent as to be a serious factor is undetermined, but it is quite evident that hereabouts Mourning Doves have not held their own, numerically, for at least a decade. A female Eastern Bobwhite (*Colinus virginianus virginianus*) was incubating ten eggs September 16. On September 11, two fairly grown Yellow-billed Cuckoos (*Coccyzus americanus americanus*) were observed in a nest in Des Moines County, Iowa.—Harold M. Holland, *Galesburg, Ill.*

The Western Gnatcatcher Also Moves Its Nest.—In the first three numbers of Volume XLIV (1932) of the Wilson Bulletin, contributions were made on the nesting habits of the Blue-gray Gnatcatcher (*Polioptila caerulea caerulea*). A summary of these contributions may be given as follows: (1) that all nests observed were on top of a limb, near a fork, possibly for protection of some sort; (2) that all nests had been moved or were being moved; and (3) that various factors are responsible for a change in the nesting sites. From evidence submitted it seems fairly safe to say that nest building material is sometimes re-used in

another nest; that this bird deliberately moves its nest at will; and that changing conditions at a chosen site may cause the birds to move the nest to a more favorable location before the eggs are laid.

I have read these contributions with interest, and believe it timely to report some observations made upon its western relative, the Western Gnatcatcher (*Polioptila caerulea amoenissima*). This past summer I had occasion to observe a pair of Western Gnatcatchers about their nest and recorded certain conditions which corroborate observations made on the eastern form. Some new information is also given.

On July 8, 1932, I was collecting in the juniper belt of the Upper Sonoran Zone, between the north base of the San Francisco Mountains, Arizona, and the Painted Desert of the Little Colorado, when I saw a gnatcatcher. Desiring specimens of this species, I followed the bird to a pinyon tree (*Pinus edulis*) where it was joined by another gnatcatcher. I soon saw a nest near one of the birds. No nest of this species had been reported from these mountains. I therefore decided to take the nest and birds, and climbed the tree. The nest was on a live horizontal limb, a few inches out from a fork, the second limb inclining upward and away from the nest. The distance to the ground was about twelve feet. The nest was covered with lichen, but was not closely examined at that time, as it was not quite completed and I planned to return later to make my collections.

The following week I returned but found the nest gone. Closer inspection disclosed only a few fibers still adhering to the limb. I was puzzled by these conditions since I was certain no person other than myself had recently been in the vicinity. In a search beneath the tree I failed to find evidence of nest or eggs. The missing nest could be attributed only to removal by birds, for predatory animals are uncommon in the region and destruction by this means would surely have left a clue. I therefore attributed the cause to my previous visit. By searching the neighborhood I found a gnatcatcher, but time did not permit further search for a nest.

A review of *The Condor* for more than twenty-five years disclosed only two references to gnatcatchers moving their nests. Both however pertain to the Black-tailed Gnatcatcher (*Polioptila melanura californica*), and are recorded by R. S. Woods. In "Home Life of the Black-tailed Gnatcatcher" (Volume XXIII, 1921, p. 175) Mr. Woods casually states that "an inspection of the nest showed that a section of it had been removed, and it was found that only a small portion of the unused nest previously built remained"; also that "the nest appeared looser and bulkier than those built of new material." Several years later in "Nesting of the Black-tailed Gnatcatcher" (Volume XXX, 1928, p. 143) he reports that "the material of the previous nest, which had entirely disappeared, was probably used in its construction." Such casual treatment of these incidents implies a familiarity of the writer with this trait in his birds.

These observations indicate that the Western and Black-tailed Gnatcatchers, like the Blue-gray Gnatcatcher, sometimes move their nest; they corroborate observations of eastern observers; and offer an additional reason why gnatcatchers move the nest. These reasons now are: first, convenient nest building material in the form of an old nest (Lewis, Vol. XLIV, p. 115); second, too close contact with an undesirable bird neighbor (Lloyd, Vol. XLIV, p. 185); and third, molestation by man before the nest is completed.—Lyndon L. Hargrave, *Museum of Northern Arizona, Flagstaff, Ariz.*

Migration Records of Eagles and Snowy Owls in the Upper Missouri Valley.—In this note the writer has collected numerous records of the Golden Eagle (*Aquila chrysaetos canadensis*), Bald Eagle (*Haliaeetus leucocephalus*), and Snowy Owl (*Nyctea nyctea*), and while not complete, they do give a fair estimate of the number of these birds coming to this region yearly. In many cases doubt as to identification has been settled by correspondence with the party who took the bird. It must also be added that the actual date of capture of the birds was not always learned and in such cases the date of the newspaper report is given instead.

Early in January, 1930, a fifteen pound Golden Eagle was shot at Dell Rapids, in eastern South Dakota, and was turned over to the South Dakota State College Museum. Soon after this another Golden Eagle was taken near Slayton, in southwestern Minnesota, and was kept in a cage in the hope that the wing injury would heal and permit flight again. In March, 1930, a young rancher at Gettysburg, in northern South Dakota, lassoed a Golden Eagle and kept the bird for a pet. About May 24, 1930, a Golden Eagle was killed by a stockman near Carroll, in northeastern Nebraska, after the bird had killed several lambs ranging from ten to sixty pounds in weight. The lambs were struck on the back of the neck and killed, after which the eyes were eaten out. One small lamb had been torn open and partly eaten. In June, 1930, a farmer killed a Golden Eagle near Spencer, in northwestern Iowa, when he saw the bird carrying off a fat hen. A search of the top of a nearby hay stack disclosed the remains of a number of chickens.

On October 28, 1930, a large Golden Eagle was killed near Irene, in southeastern South Dakota, and was sent to a taxidermist for mounting. On October 30, 1930, a Golden Eagle was shot by a farmer near Humboldt, in eastern South Dakota, when the bird molested his poultry. This specimen was mounted and presented to the local Masonic Lodge. About November 12, 1930, two Golden Eagles were killed in northeastern Nebraska, one near O'Neill and the other, which had attacked a flock of turkeys, at Dora Lake. A Golden Eagle was winged and captured by two hunters on November 15, 1930, at Ipswich, in northern South Dakota. On November 21, 1930, four hunters near Rushville, in northwestern Nebraska, found a Golden Eagle tangled in a fence where it had killed a grouse. The men freed the bird and allowed it to fly away. On February 5, 1931, two hunters brought down a Golden Eagle, one of two birds flying near Tyndall, in southeastern South Dakota. Another case of an eagle being lassced occurred on February 6, 1931, when a rancher at Petersburg, in eastern Nebraska, rode his horse near a Golden Eagle and caught the bird by one wing with a quick throw of his lariat.

Records of the Bald Eagle show that this species is a rather casual visitor in this area. On November 11, 1929, a fine mature Bald Eagle was killed at Wayne, in northeastern Nebraska. About December 8, 1930, an adult specimen of this species was taken at Lake Benton, in southwestern Minnesota, and was given to the local American Legion post. On February 13, 1931, a report was received that a farmer at Windom, in southwestern Minnesota, had been assailed by a large bird and had killed it. The bird proved to be an adult Bald Eagle with a wing spread of nearly eight feet.

Not since the great flight of Snowy Owls in 1917-18, has there been a general invasion of this species to this region. Each season, however, brings a few scat-

tered reports of Snowy Owls. During the middle of December, 1929, one of this species was killed at Marshall, in southwestern Minnesota, and another was shot by a school teacher near Meadow, in northwestern South Dakota. A third bird was taken at Mission Hill, in southeastern South Dakota, on December 12, 1929. In January, 1930, a rancher at Redelm, in northwestern South Dakota, killed a large Snowy Owl, which had been taking some of his chickens. On January 8, 1931, a Snowy Owl was captured alive at Wagner, in southeastern South Dakota. The last bird reported was one from Flandreau, in eastern South Dakota, on February 9, 1931.—William Youngworth, *Sioux City, Iowa.*

Some Hoosier Bird Notes.—I was called to two places in one day this past summer (1932) to see Ruby-throated Hummingbird nests. In one nest there were two eggs. One of these eggs had the shell broken, and I was sure the lining of the shell was left about a dead bird. The mother came and went several times while I was there. The nest was eight feet up on a small hanging branch of an apple tree, about forty feet back of the house. In a few days a call came that there was one young bird about the size of a honey bee in the nest. It was glossy black, as if it had had a "shine", and naked except for a small tuft of down on the back. I did not get out to see it right away, so it disappeared when very young.

The second Ruby-throated Hummingbird's nest was several miles away, near Pendleton, Indiana. It was on a horizontal branch of a tree about fifteen feet from the house. In a bird box near by a House Wren was nesting. When I visited the place, something had happened to the hummingbird's nest. The two white eggs had been pierced by some sharp instrument (we thought by the wren, as he is such a fighter), and the eggs had been thrown to the ground. Later the nest was dislodged, and a big part of it disappeared, with a small part left on the ground and some remains yet saddled upon the branch of the tree. It is not known just what happened, but the woman living at the place said she felt sure the wren had destroyed the eggs. Perhaps the hummingbirds then destroyed the the nest, or the wren may have done so.

My aunt, Mrs. J. A. Armstrong of Hollywood, California, was here this summer. She told me of her experience with a hummingbird which built in the hammock-hook on her front porch. She had the privilege of seeing the eggs, the young, and noted the whole process of incubation from first to last, which was most interesting at close range.

As to birds tearing up their own nests, that is true; but a Blue Jay tried to destroy the nest and young birds of a Cardinal here this summer, and I have yet to see another such battle. The nest was turned on the side in the mulberry tree, and the young birds were ready to topple out. The Cardinals won, and the Blue Jays, thoroughly routed, flew up into a nearby tree to straighten their ruffled plumage, which the brave Cardinals had much disarranged. I then got a tall step ladder and stood on top, in order to reach the nest, as it was about ten feet up, the highest I had ever seen a Cardinal's nest. I fastened the upturned nest back with sprouts growing near it, by folding them back and forth and securing the ends firmly beneath. Meanwhile, the Cardinals sat in the tree above me and watched the proceedings without a whimper. I am sure they recognized me as their friend, for they were not afraid at all, and when I climbed from my perch, they went at once to the nest. I never saw the jays bother them again. I have never known a Cardinal to put up such a fight as that. The

jays had a surprise they did not soon forget. The young birds grew up and have been about the bird bath and feeding station ever since.

Recently a teacher called that she had a strange bird which the children had picked up at a country school when the grackles had fought it almost to the finish. They did not know the species, so brought it to me for identification, but it died enroute. It was a young Ovenbird. It did not try to escape when the children rescued it.

Recently a woman called that she had a strange little bird which they had picked up in the yard. It did not try to get away, so she decided it must be injured, and she brought it to me. It was a male Golden-crowned Kinglet, well and lively. We can pick it up anywhere and it will sit on one's shoulder or head as tamely as a canary. We weighed it on the postal scales and it does not even weigh one-fourth of an ounce!

We had the surprise of the season in September when we found a real Whip-poor-will in the back yard. I have never known of but one bird of this species about this part of the state, and have never known of any being in the city. We live four blocks from the busiest corner in the city.—Mrs. Horace P. Cook, *Anderson, Ind.*

An Early Arrival Date of the Great Blue Heron at McMillan, Michigan.—Between one and two hours before sunset on March 29, 1932, I saw a Great Blue Heron (*Ardea herodias herodias*). It was flying rather low over field and cut-over land, and going southward. This arrival date was seven days earlier than my earliest previous record of April 5, 1929, for this locality. The following are my migration records of the Great Blue Heron for McMillan:

First Seen	Number Seen	Next Seen	When Common	Last Seen	Year
April 17					1922
April 19					1923
April 30				September 24	1924
April 6	1	April 7			1925
September 20					1927
May 9	1	May 12	May 9	September 8	1928
April 5	1	May 25	May 25	August 27	1929
May 27	1	May 30	May 27	September 21	1930
May 12	2	May 22	May 12	August 20	1931

The missing seasons—the fall of 1925 to and including the spring of 1927—were spent at Three Rivers, St. Joseph County, Michigan. These are as follows:

First Seen	Number Seen	Next Seen	When Common	Last Seen	Year
				October 31	1926
April 2	1	April 5	April 9	November 7	1925
April 5	1	April 6	April 6		1927

This is the first time that the Great Blue Heron came on my yearly list before the Robins and others of the "first comers" in spring. I am unable to account for this unusually early date. While the weather during December, January, and February this winter was unusually warm—there being very few days of zero weather—the month of March has been stormy and with very few thaws, although some streams are open in places. Snow has fallen on nearly every day this month. The weather on the date of this observation was partly cloudy, temperature ten degrees to forty-three degrees F., and a moderately strong southeast wind.—Oscar McKinley Bryens, *McMillan, Luce County, Mich.*

Some Sight Records from Ohio.—On August 6, 1931, at Guilford State Park, eight miles south of Salem, Ohio, I saw a flock of nine white herons, which, because of the press of time, I approached only close enough to determine that they were not large enough to be American Egrets (*Casmerodius albus egretta*). I assumed at the time that they were Little Blue Herons (*Florida caerulea caerulea*) in the immature plumage, this species having been quite common in 1930. On the same day Grant M. Cook and Edward Minnich also saw the birds and went on the same assumption.

On August 14, however, when there were eight birds remaining, I discovered that none of the eight had any trace of bluish in the primaries. On August 16, when there were seven birds left, several other observers and I were able to approach closely enough to one bird to see the black legs, and I was satisfied that all were Snowy Egrets (*Egretta thula thula*). On August 19, there were four birds present, all of which had the black legs; on August 22 and 23, there were two birds present, and, intermittently to September 3, there was one bird present. On August 22, Mr. Cook and a party of observers again were present, and Mr. Cook was satisfied that at least one of the two was a Snowy Egret. During the period these birds were present, I was able to observe their feeding habits to a limited extend. At some times all were very active; at other, all were quiescent; while at still other times, some were very active and others inactive.

During the summer of 1931 there were no Little Blue Herons or American Egrets present at Guilford Lake, although I saw one bird of the latter species on August 25, at Pine Lake, twelve miles east of Salem. During the summer of 1932, at Guilford Lake, there were five American Egrets present from August 10 to September 5, and thereafter a single bird until September 20. During the same period I noted the birds of the same species at Pine Lake and a single individual at still another lake.

On March 27, 1932, in company with Edward Minnich, E. O. Mellinger, and Myron T. Sturgeon, at Beaver Lake, twelve miles east of Salem, I saw a single male European Widgeon (*Mareca penelope*) with a large number of Baldpates (*Mareca americana*). We studied it for some time at 100 yards with 45x telescopes. A few days later at Guilford State Park, eight miles south of Salem, I again saw a male of this species, also in company with Baldpates, which I observed at ninety feet with 8x binoculars.

On July 3, 1932, near East Liverpool, Ohio, Mr. E. O. Mellinger and I discovered two singing individuals of the Carolina Chickadee (*Penthestes carolinensis carolinensis*). I had long suspected the presence of this species in that region, which is unglaciated, and the flora of which is decidedly Carolinian, but it was not until May 15, 1932, that my suspicion was even tentatively confirmed. On that date, in Beaver County, Pennsylvania, a hundred yards from the Ohio border, I found a pair of chickadees, gathering food for young, which appeared to have no whitish whatever in the feathers of the wings or wing coverts. I did not discover the young of these birds in the half hour or more that I followed them, nor did I hear them sing; hence, I was not satisfied of their identity. On the later date, however, four miles west of the Pennsylvania border, and a mile from the Ohio River, Mr. Mellinger and I observed the second pair, which were

in the same plumage as the first, and which continually sang their four-syllabled song.

This record constitutes an extension northward of the accepted range of the species, but one which is perfectly logical, for, while the region is cartographically a part of northeastern Ohio, it is physiographically and faunally an integral part of southeastern Ohio.—William C. Baker, *Salem, Ohio.*

COMMUNICATIONS

Biographical Corrections

The late Dr. Chas. W. Richmond, to whom I am indebted for much information of an interesting character as well as kindly comment and constructive criticism, in a letter dated less than a month previous to his demise, called my attention to two errors in my paper entitled "Charles W. and Titian R. Peale and the Ornithological Section of the Old Philadelphia Museum" (Wilson Bulletin, XLIV, 1932, pp. 23-35). I have always endeavored to quote correctly and, as I had examined the titles in question, my inaccuracy seems inexcusable.

Inasmuch as the same unfortunate errors appeared in Dr. Stone's short biography of Titian R. Peale (*Cassinia*, XIX, 1915, pp. 1-13) it seems advisable to take up the necessary space for correction. The Cassin edition of "Mammalogy and Ornithology of the U. S. Exploring Expedition" was issued in 1858, not 1852, ten years later than the Peale edition; and Peale's middle name was Ramsay, not Ramsey.

Dr. Richmond informed me that there is a manuscript account by Peale of the history of the U. S. Exploring Expedition in the U. S. National Museum, that there are about four of Peale's journals of the Expedition in the Library of Congress, and there are supposed to be three others missing; also that the suppressed introduction to his work, in his own handwriting, is in the library of the American Museum of Natural History.

Peale wrote this introduction to his volume in which he explained that Lieut. Wilkes had ordered him to describe as new every bird and mammal undescribed at the time it was observed by the expedition, irrespective of whether it had been described in the interim. It was Wilkes' unreasonable interference that obliged him to redescribe the Dodo Pigeon, although it had already been fully described and advertised. Wilkes did not like this and suppressed the introduction, and in the absence of an explanation Peale had to take the blame for his commander's blunder.

I do not wonder that Dr. Richmond thought Peale a much maligned man, for never had a naturalist worked under greater handicap. Cassin, too, was unfriendly and preferred to express his indebtedness to Dr. Chas. Pickering (who was not a rival) as his source of information, rather than acknowledge Peale for his painstaking labor, and he tried in every way to suppress any information of the original edition of the "Mammalia and Ornithology". In a letter to Baird, Cassin warned him to watch Peale as he was trying to get a job at the Smithsonian Institution. These facts give an additional significance to the communications that passed between Ord and Peale, extracts of which have already been published by me.

Frank L. Burns, *Berwyn, Pa.*

PROCEEDINGS OF WILSON ORNITHOLOGICAL CLUB

By Lawrence E. Hicks, Secretary

The Nineteenth Annual Meeting of the Wilson Ornithological Club was held at Columbus, Ohio, on November 25-26-27, 1932. The Wheaton Club and the Columbus Audubon Society served as hosts to the visiting organization. The business and program sessions were held at the general headquarters, The Ohio State Museum on the Ohio State University Campus. Short business sessions were held Friday and Saturday morning. Thirty-five papers, slide talks, and movie presentations were given at the four program sessions Friday and Saturday, morning and afternoon. The maximum attendance at each session was 81, 137, 129, and 146.

Friday evening the Wilson Ornithological Club Annual Dinner was held at the University Faculty Club. The dinner was a success in every way. Following the serving of an attractive menu and musical entertainment, Mr. Edward Sinclair Thomas, serving as toastmaster, introduced Vice-President Morrill of Ohio State University, who gave a short address of welcome to which President Shaver responded for the Wilson Club. Next three minute "thought incubations" were presented by Dr. Josselyn Van Tyne, Dr. Raymond C. Osburn, Mr. Albert F. Ganier, and Dr. S. Prentiss Baldwin.

As the second event of the evening, the group adjourned to the Chemistry Auditorium for a joint meeting with the Columbus Audubon Society. Here a group of 175 enjoyed the double treat of listening to Alfred M. Bailey and seeing his five reels of splendid movies entitled, "The Haunts of the Golden Eagle". These pictures were taken in Colorado by Mr. Bailey, Mr. R. J. Niedrach, and Mr. Francis R. Dickinson for the Colorado Museum of Natural History and the Chicago Academy of Sciences.

Another special feature was the Photography and Painting Exhibit held at the Ohio State Museum in connection with the meetings. A total of 197 exhibits were shown. The usual annual exhibition of local organizations was enlarged by contributions from many sections of the United States and proved to be exceedingly interesting to those attending. Photograph enlargements were shown by H. S. Swarth, Wright M. Pierce, Henry Collins, Jr., Robert B. Gordon, Josselyn Van Tyne, Edward S. Thomas, Lawrence E. Hicks, William Pass, Robert H. McCormick, F. R. Flickinger, Roscoe W. Franks, and Kenneth Gordon. Paintings or Etchings were shown by Paul Forstoefel, Karl Plath, F. R. Flickinger, George Miksch Sutton, W. E. Clyde Todd, and Kenneth Gordon.

Saturday evening about seventy-five persons who still remained were entertained by the Columbus Audubon Society and the Museum Staff at an Open House at the Ohio State Museum. The entire museum was open for inspection and Mr. Thomas and Mr. Walker made available for those interested the bird skins from the collections of Wheaton, Jaspar, Davie, Henninger, and the large Bale egg collection.

On Sunday, a large enthusiastic group of sixty-four persons traveled by auto to Buckeye Lake, thirty miles east of Columbus, for the annual field trip. The group was led by Milton B. Trautman of the Ohio Division of Conservation, who has made a ten-year study of the birds of that region. In all, more than 285 species have been recorded from the locality. The lake, which is about eight miles long, was slowly circled, frequent stops being made to cover tracts of

swampy forest or observe rafts of waterfowl on the lake. At one o'clock a most welcome dinner was served at the Bruno Inn to the famished trampers and then the search continued. A number of rare species were recorded. The total observations for the day yielded fifty-nine species and about 4500 indivdiuals.

Business Sessions

The first business session was held from 9:30 to 10:00 A. M. Friday, the meeting being called to order by President Shaver.

The minutes of the previous meeting were approved without being read, since they had previously been published in the Wilson Bulletin (Vol. XLIV, No. 1, pp. 50-64). The Secretary's report was considered as very satisfactory, considering the prevailing economic conditions. It showed a total membership of 734, a decrease of ten from the previous year. A list was presented of 113 new members secured during the year and previously confirmed by the Electoral Board. These were elected to membership.

The Editor was not able to attend but had sent a detailed and most carefully worked out report summarizing his activities during his eight-year term of office. This report included a complete table of statistics for each issue of the Bulletin, including costs for each item and the time involved in its preparation. The result tended to emphasize the size of the task involved in publishing the Bulletin and of the tremendous demands made upon the time and energy of an editor. The report was too lengthy to be read but was made available during the meeting to those interested. In the absence of the Treasurer, his report was read by the Secretary. It was referred to the Auditing Committee for consideration.

The following temporary committees were appointed by the President: Nominations, Margaret M. Nice, Dr. Lynds Jones, and Albert F. Ganier; Resolutions and Amendments, Benedict J. Blincoe, Dr. Harry W. Hann, and Lewis W. Campbell; Auditing, Dr. Josselyn Van Tyne and Edward S. Thomas.

At the Saturday morning session, all committees reported. The report of the Committee on Nominations was accepted and, on motion, the Secretary was instructed to cast one ballot for the slate. The new officers thus elected were:

President: Jesse M. Shaver, George Peabody College for Teachers, Nashville, Tennessee.

First Vice-President: Josselyn Van Tyne, Museum of Zoology, Ann Arbor, Michigan.

Second Vice-President: Alfred M. Bailey, Chicago Academy of Sciences, Chicago, Illinois.

Secretary: Lawrence E. Hicks, Department of Botany, Ohio State University, Columbus, Ohio.

Treasurer: W. M. Rosene, City Bank, Ogden, Iowa.

The Committee on Resolutions made the following report which was unanimously adopted:

Resolved, The Wilson Ornithological Club, assembled for its nineteenth annual meeting at Columbus, Ohio, this 26th day of November, 1932, wishes to record its thanks and appreciation to:

The Ohio Archeological and Historical Society and the Ohio State University for the use of their buildings and equipment, so well adapted to our meetings;

To the Wheaton Club of Columbus and to the Columbus Audubon Society for their courtesies and hospitality in entertaining the club at Columbus and at Buckeye Lake;

To our local members and constitutents in the Columbus district, who by their interests and assistance, have helped to make this meeting a success;

To our efficient officers, President Shaver, Secretary Hicks, Treasurer Rosene, and Editor Stephens, who by so generously giving of their time and interest to the club, have enabled it to continue the high standards set in the past.

Whereas, there are laws in some states providing for the payment of bounties on certain hawks and owls, be it

Resolved, that such laws be immediately repealed, since they invite promiscuous slaughter of many useful birds of prey.

Whereas, much propaganda has been dissiminated to the effect that the removal of the Bob-white quail from the game bird list in Ohio has resulted in the deterioration of this species,

And Whereas, the work of Mr. E. L. Wickliffe and Mr. Milton B. Trautman of the Ohio Division of Conservation, has proven this charge to be false, be it

Resolved, that the utmost publicity be given to the findings of this research throughout the United States and Canada.

The Auditing Committee reported that the Treasurer's accounts were well kept, accurate, and balanced. The Committee's report was accepted and the Treasurer's report approved.

At the close of the Saturday afternoon program, President Shaver declared the meeting adjourned.

Program of Papers

The program given below is just as it was carried out and as it was listed on the printed program. The Friday morning session began by an address of welcome by Mr. Henry C. Shetrone, Director, Ohio State Museum, to which President Shaver responded. Following the brief business meeting program papers were presented as abstracted below.

1. A Local Study in Highway Bird Mortality. (15 min.). Ben J. Blincoe, Dayton, Ohio.

2. A Summary of Bird Casualties Dues to Automobiles. (5 min.). Lynds Jones, Oberlin, Ohio.

   A comparison of 1932 observations with a number of previous similar studies.

3. Birds as Material for Investigating Fundamental Problems of Animal Ecology. (10 min.). Jesse M. Shaver, George Peabody College for Teachers, Nashville, Tennessee.

   A number of behaviorisms and unique characteristics of birds as a group were cited which make the bird a valuable subject for field research.

4. Making Ornithology a Planned Science. (15 min.). Henry H. Collins, Jr., Chestnut Hill, Pa. (Read by Title).

5. A New Check-list of the Birds of Missouri. (5 min.). Rudolph Bennitt, Department of Zoology, University of Missouri, Columbia, Mo.

   (Abstract read by R. L. Baird). A report of a new bird catalog for the state, the first since Widmann's list of 1907, listing 388 species and subspecies now known to occur.

6. The Size, Weight, and Present Day Numbers of the Ohio Bob-whites. (15 min.). Milton B. Trautman, Bureau of Scientific Research, Ohio Division of Conservation, Columbus, Ohio.

   Field and laboratory studies of the species were made to determine the validity of contentions as to diminishing size, weight, and abundance due to inbreeding. A number of recently collected birds were compared in various ways with older collections. Nothing was found to support any of these contentions. The concentrations of Bob-whites found varied from one bird per four acres to one bird per twelve acres of land. The commonest distribution was one bird to each eight acres of land.

7. The Response of Birds to the Decrease in Light Intensity at the Time of the Solar Eclipse, August 31, 1932, as Measured by the Macbeth Illuminometer at Nashville, Tennessee. (15 min.). (Lantern). Mrs. Emily Barry Walker, East Texas State Teacher's College, Commerce, Texas. (Read by Title).

8. A Statistical Survey of Ohio Winter Bird Life. (5 min.). Floyd B. Chapman, Columbus, Ohio. (Lawrence E. Hicks, co-author).

   Mimeographed summaries were presented of the results obtained by the compilation of the 392 Christmas Censuses taken in Ohio from 1900 to 1931, as published in *Bird-Lore*. A total of about 520 different ornithologists coöperated in taking censuses during the period from 77 localities in 49 counties, 133 species and 222,825 individuals being listed. These average 24 species and 569 individuals per census.

9. The Tremper Effigy Pipes. (15 min.). (Lantern). Emerson F. Greenman, Ohio State Museum, Columbus, Ohio.

   A fascinating picture story of about twenty-five effigy pipes displaying various bird species, found in the numerous earthworks of the Ohio Mound Builders.

10. Some Prehistoric Ohio Bird Records. (15 min.). Charles F. Walker, Ohio State Museum, Columbus, Ohio.

    An account of various bird species identified from bone remains found in caves of southeastern Ohio which were formerly frequented by prehistoric man. Several species extinct today were found and some indication is given in a few instances as to possible change in the numerical status of a species.

11. The Migratory Instinct in Song Sparrows at Columbus, Ohio. (20 min.). (Lantern). Margaret M. Nice, Columbus, Ohio.

    In a population of breeding *Melospiza melodia beata*, 50% of the males and 12% of the females in 1931 were permanent residents, the other birds migrating south for the winter. In 1932 60% of the males and 22% of the females were stationary. The character of migrating or non-migrating has been stable in thirty birds. Two males have changed status, one summer bird remained last winter, while one resident migrated, both two-year-old birds. As to inheritance, resident fathers have resident sons, a resident pair had a resident son and daughter, while summer resident pairs have had resident sons.

12. Breeding Birds of Ashtabula County, Ohio. (20 min.). (Lantern). Lawrence E. Hicks, Department of Botany, Ohio State University, Columbus, Ohio.

    Ashtabula County, located in the extreme northeastern corner of the state, has preserved more relics of the northern and northeastern flora and fauna than any other Ohio county. From 1924 to 1932, 314 days were spent in field work in the county and 3100 miles covered on foot. The famous Pymatuning Bog area, swamps, northern forest areas, lake shore and stream gorge tracts, gave a habitat variety attractive to many species. During the study, more than 1500 species of vascular plants were collected, including about twenty new

for the state. The total list of breeding birds was 154, of which 145 were verified by nesting records. A number of these species had not been regarded previously as breeding residents of the state. The list includes ten species of the hawk group, seven owls, twenty-two warblers, and nineteen members of the sparrow tribe.

13. Yellow-crowned Night Herons Nesting in Ohio. (15 min.). (Lantern). Roscoe W. Franks, Baldwin Bird Research Laboratory, Gates Mills, Ohio.

A life history study, illustrated by superb colored pictures, of the first known nesting of the species in the state. A single nest was found among a colony of Black-crowned Night Herons at Indian Lake.

14. Returns from Starlings Banded at Columbus, Ohio. (20 min.). (Lantern). Edward S. Thomas, Ohio State Museum, Columbus, Ohio.

More than 7500 Starlings were banded in the Columbus region from 1927-1930 by the combined efforts of the members of the Wheaton Club. To date more than 175 distant returns have been received which indicate that the Starling is generally a migratory species, that the usual migration direction is northeast and southwest, that Starlings wintering at Columbus breed to the northeast in Ohio, Pennsylvania, New York, and southern Canada, that the usual life span is a short three years and that the invasion of new breeding territory was by birds of the year and not by adults.

15. Prairie Bird-life of Saskatchewan. (15 min.). W. E. Clyde Todd, Carnegie Museum, Pittsburg, Pa.

An informal talk concerning the numbers, distribution, and occurrences of various species observed in the region during a trip in the spring of 1932.

16. History of an Ohio Tern Colony. (20 min.). (16 mm. Motion Pictures). Lewis W. Campbell, Toledo, Ohio.

Several years ago a colony of Common Terns became established on a sandy point on the mainland near Toledo. All other colonies were situated on rocky islands of the lake. The colony grew until it consisted of 2,000 or more nests. Then began a series of destructions by wind, wave action, rats, fishermen, and egg hunters. Few young birds were raised and the colony decreased in numbers until its continuation is now doubtful.

17. Getting Acquainted with European Birds. (25 min.). Margaret M. Nice, Columbus, Ohio.

Over a hundred new life birds were identified on a European trip in 1932. Some of the most interesting were the Hobby and the Great Bustard of Germany, the Alpine Chough of Switzerland, and the Kite and Harrier Eagle in Italy. Ornithologists in five different countries were visited, besides zoos, natural history museums, and three acquariums.

18. Climatic Factors Regulating Migration. (20 min.). (Lantern). S. Charles Kendeigh, Biological Laboratory, Western Reserve University, Cleveland, Ohio.

Temperature, formerly considered one of the most important of climatic factors regulating migration, has recently been less emphasized in this connection. Studies at the Baldwin Bird Research Laboratory show, however, that low temperatures are important when combined with periods of time when the bird is unable to get food. Some small passerine species are unable to survive northern winters because the days are too short and the nights are too long, so that they are unable to assimilate sufficient food during the daytime to maintain their resistance over-night. This is in spite of the fact that the resistance against low temperature of birds in the winter is greater than what it is in the summer. Experiments show a difference in resistance to low temperature between species that migrate and those that do not, and

between those that migrate north early in the spring and those that come later. Birds have little resistance against high temperatures. Temperature, relative length of day and night, and availability of food, appear, therefore, to be the most important factors regulating migration.

19. An Unusual Great Blue Heron Colony. (5 min.). (Lantern). Fred A. Hanawalt, Zoology Department, Otterbein College, Westerville, Ohio.

    Continued cutting of a swampy forest tract caused a small group of herons to desert and establish a new colony in a very dry upland situation east of Westerville, Ohio.

20. Ohio Game Bird Research. (15 min.). (Lantern). Lawrence E. Hicks, Department of Botany, Ohio State University, Columbus, Ohio.

    Upland game bird research studies in Ohio have extended to each township of the eighty-eight counties. An ecological survey has been made of each county to evaluate the possibilities of each for the several species of game birds and related species involved.

21. Method in Bird Study. (15 min.). (Lantern). S. Prentiss Baldwin, Baldwin Bird Research Laboratory, Gates Mills, Ohio.

    Some of the bird study methods used at the Laboratory were outlined and some suggestions made for local bird studies. An appeal was made for ornithologists to investigate their own back yard, to select some problem linked with the characteristics of their own locality and follow out that problem in the detail which would make possible a valuable contribution to the knowledge of a region or species.

22. A Preliminary Study of the Birds of Southern Michigan. (20 min.) (Lantern). Harry W. Hann, Department of Zoology, University of Michigan, Ann Arbor, Mich.

    An illustrated account of numerous original minor investigations of interest made of the breeding species of the area during the past several seasons.

23. The Hawk Slaughter at Drehersville, Pa. (15 min.). Henry H. Collins, Jr., Chestnut Hill, Pa. (Read by Title).

24. Popularizing Hawk and Owl Conservation. (5 min.). Lewis B. Kalter, Dayton, Ohio.

25. Food Habits of Some Ohio Raptorial Birds. (10 min.). Arthur Stupka, Laurelville, Ohio.

    A so-called "vermin campaign" was sponsored by the Ohio Division of Conservation from October, 1931, to May, 1932. Realizing that this would result in the killing of a large number of raptorial birds, the Bureau of Scientific Research, in an effort to gain information which might lead to the passing of intelligent laws concerning hawks and owls, urged the state game protectors to send all such birds to the Ohio State Museum where the stomachs were examined by Mr. Stupka. Altogether, a total of 739 raptorial birds, comprising eight species of hawks and seven species of owls were received in the course of the campaign. Approximately two-thirds of these were taken in traps while the rest had been shot. Investigation of the stomach contents showed that no species could be considered harmful to game birds or poultry while only the rare Sharp-shinned Hawk and the more common Cooper's Hawk proved harmful to smaller non-game birds.

26. The Protection of Hawks and Owls in Ohio. (25 min.). S. Prentiss Baldwin, S. Charles Kendeigh, and Roscoe W. Franks. Baldwin Bird Research Laboratory, Gates Mills, Ohio.

A general discussion of the whole situation concerning the economic status and the protection of hawks and owls. Data were presented from a recent paper by the same title, which reviewed the literature, Ohio data, and recent studies at the Laboratory of all important angles to the problem. The summary substantiated the findings obtained by Mr. Stupka. Proposed legislation was discussed which would abolish bounty laws, prohibit use of the pole trap, and protect all species of hawks and owls except when doing actual damage.

27. Buckeye Lake, the Scene of the Wilson Club Field Trip. (5 min.). Milton B. Trautman, Bureau of Scientific Research, Ohio Division of Conservation, Columbus, Ohio.

Two natural lakes and an extensive swampy and boggy area were united in the development of the Ohio Canal System about a century ago into Buckeye Lake, a body of water about eight miles long and one or two miles wide. In this region comprising thirty square miles, a total of more than 285 species of birds have been recorded, most of which are represented by specimens. A ten-year study has revealed many rare species and disclosed that many migrants, wintering species, or breeding species occur in unusual numbers.

28. The Distribution of Birds in Northern Guatamala. (15 min.). (Lantern). Josselyn Van Tyne, Museum of Zoology, Ann Arbor, Mich.

During extensive field work in the area a large number of specimens have been collected and have recently been identified and studied in relation to certain interesting climatic and biological characteristics of the region. The avifauna of the region may be divided into four principal elements: (1) certain endemic genera and species, clearly relics of a very ancient fauna, (2) a small tropical rain-forest element derived from the Caribbean slope of Central America, (3) an arid tropical zone element which ranges up the Pacific coast of Central America and reaches northern Guatemala by way of the Isthmus of Tehuantepec, and (4) a boreal element derived from North America.

29. The Great Crane-Town at Reelfoot Lake, Tennessee. (25 min.). (Lantern). Albert F. Ganier, Nashville, Tennessee.

An excellent series of colored slides portrayed bird's-eye and general views of the bird habitats found at this earthquake-created lake. This colony is probably the largest herony in the interior of the United States. About 1,000 nests were built in 1932, including 450 of the American Egret, 300 of the Great Blue Heron, 200 of the Double-crested Cormorant, and 50 of the Anhinga.

30. An Ohio Record of the Swallow-tailed Kite. (15 min.), Edward S. Thomas, Curator of Natural History, Ohio State Museum, Columbus, Ohio.

The second Ohio specimen of the Swallow-tailed Kite was recently presented by John Seip to the Museum. Mr. Seip collected the bird at Chillicothe, August 29, 1898, and had it mounted by Mr. Charles Drury of Cincinnati. A bit of interesting history is connected with the find; the collection was reported by Rev. W. F. Henninger in the WILSON BULLETIN of September, 1902, but until recently the existence of the specimen was unknown.

31. The Mallophaga Infesting Cowbirds. (10 min.). Robert M. Geist, Department of Zoology, Capital University, Bexley, Ohio.

The study of Mallophaga or body parasites of birds is of great interest in regard to the host and the development of new species in the process of evolution. This is especially true in regard to the parasites of a species like the Cowbird, the young of which are raised in the nests of other species. Of 155 Cowbirds examined for parasites, the several species found fall into three groups: those characteristic of the blackbirds, those characteristic of passerine birds in general, and a third group of species which can be re-

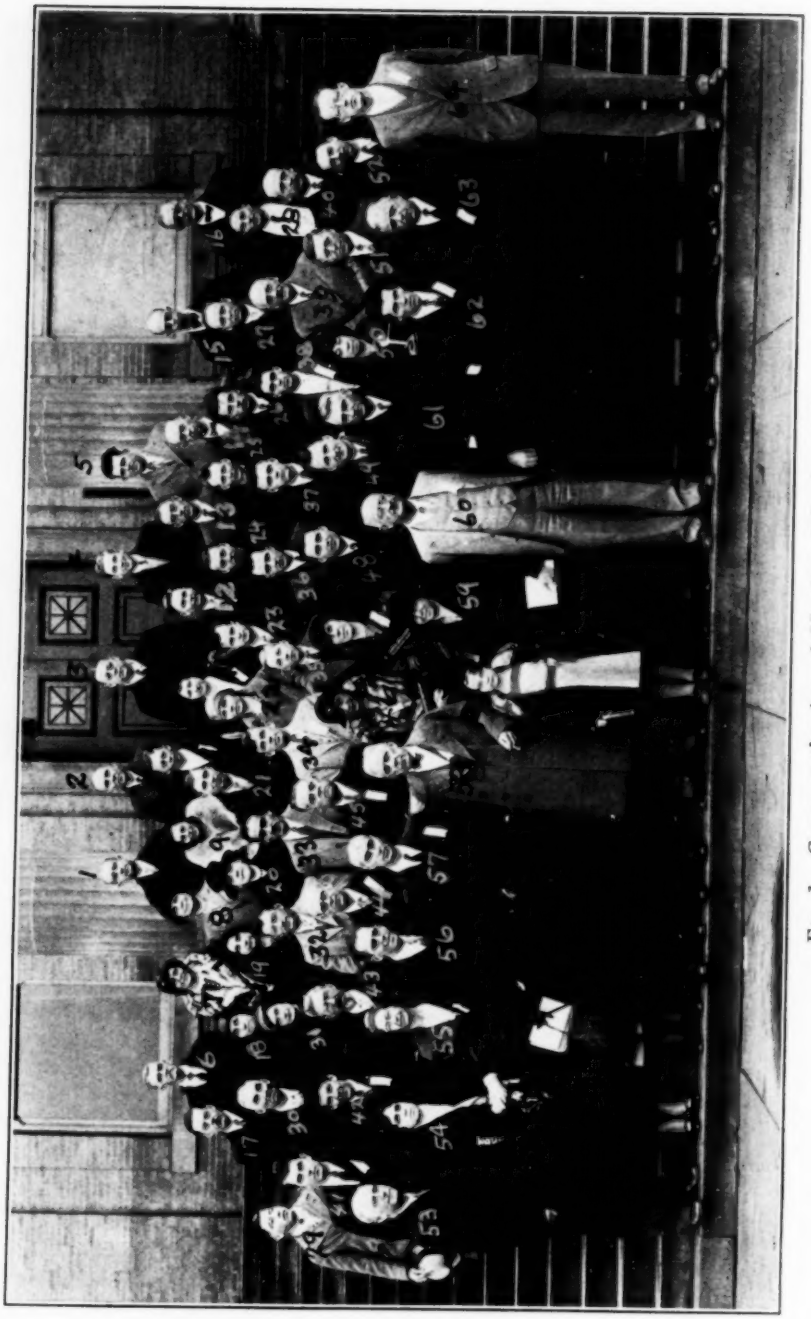

Fig. 1. Group at the Annual Meeting, Columbus, 1932.

garded as stragglers. The degree of infestation is usually small and the number examined is not deemed sufficient to permit the drawing of definite conclusions.

32. The Domestic Fowl as a Subject for the Investigation of Ornithological Problems. (20 min.). E. L. Dakan, Poultry Department, Ohio State University, Columbus, Ohio.

A large number of physiological experiments of various types have been conducted with the domestic fowl where it was often possible to study much greater numbers than would be possible when working with wild species. Many of the results obtained apply at least in part to wild birds and merely need confirmation in other bird groups. A splendid list was presented of references concerning work of this type which would be of general interest to all ornithologists. Many of these would be of interest to bird banders who are able to make external examinations of large numbers of birds. Examples illustrated by graphs and charts dealt with the relation between the food supply, temperature, light, and activity with the development of the sexual organs, egg production, expression of the migration and other instincts, development of plumage, and the condition of the feet, legs, eyes, bill, wattles, comb, and skin.

33. Glimpse of Living Bird Embryos. (40 min.). (35 mm. motion pictures). Bradley M. Patten, Western Reserve Medical College, and Theodare M. Kramer, Baldwin Bird Research Laboratory, Gates Mills, Ohio.

A most remarkable series of photographs, taken in the early phases of development by transmitted light, later by reflected light. What happens inside of an egg is told from the first division of the fertilized egg until the developing embryo becomes a day old chick. The development of the heart beat and the racing of the red blood corpuscles in the capillaries, presents a fascinating picture and adds to our belief that the living bird is indeed a most remarkable creation.

34. Ohio Wild Life Movies. (45 min.). (35 mm. motion pictures). Roscoe W. Franks, Baldwin Bird Research Laboratory, Gates Mills, Ohio.

A series of excellent shorts of birds and animals at home, remarkable for their unusual clearness and close-up portrayal of many species widely regarded as difficult to photograph.

35. Life History of the Red-bellied Hawk. (40 min.). (16 mm. motion pictures). Wright M. Pierce, Claremont, California.

A fine photograph series of happenings during the complete nesting period of a western species closely akin to our eastern Buteos.

KEY TO GROUP PHOTOGRAPH OF THE WILSON ORNITHOLOGICAL CLUB

1. Lawrence D. Hiett. 2. Benjamin J. Blincoe. 3. Frederick R. Flickinger. 4. Roger Conant. 5. Charles B. Mayer. 6.——. 7. Miss Mary Baker. 8. Mrs. Ray Lovell. 9. Mrs. Lawrence E. Hicks. 10. Arthur Stupka. 11. Mrs. Arthur Stupka. 12. Lewis W. Campbell. 13. Milton B. Trautman. 14. W. E. Clyde Todd. 15. Robert B. Geist. 16. Raymond C. Osburn. 17. Robert B. Gordon. 18. Mrs. E. H. Hicks. 19. Miss Marcella Crain. 20. Mrs. W. H. Williams. 21. C. W. Rahe. 22. Mrs. C. W. Rahe. 23. Donald W. Douglas. 24. William Ireland, Jr. 25. Lony B. Strahla. 26. Paul Stewart. 27. Gilford J. Ikenberry. 28. Bernard R. Campbell. 29. Paul Forsthoefel. 30. E. H. Hicks. 31. Miss Marjorie M. Nice. 32. Ralph C. Hall. 33. W. H. Cummings. 34. Louis B. Kalter. 35. John H. Ritter. 36. William C. Baker. 37. Floyd B. Chapman. 38. Robert J. Marsh. 39. J. C. Hambleton. 40. George S. Wolfram. 41. Maurice E. Foote. 42. Dale Kellog. 43. E. L. Moseley. 44. Robert L. Baird. 45. Albert Million. 46. Mrs. Albert Million. 47. Mrs. Benjamin J. Blincoe. 48. Roscoe W. Franks. 49. S. Charles Kendeigh. 50. Miss Erna Gonzalez. 51. Harry W. Hann. 52. Charles F. Walker. 53. Leonard B. Nice. 54. Mrs. Marjorie L. Guest. 55. Mrs. Margaret M. Nice. 56. Alfred M. Bailey. 57. Edward S. Thomas. 58. S. Prentiss Baldwin. 59. Mrs. E. T. Kershaw. 60. Lynds Jones. 61. Jesse M. Shaver. 62. Lawrence E. Hicks. 63. William P. Holt. 64. Josselyn Van Tyne. Photographs of this group may be secured at 75 cents each from the Photography Department, Ohio State University, Columbus, Ohio.

REPORT OF THE SECRETARY FOR 1932*

Columbus, Ohio, December 31, 1932.

To the Officers and Members of the Wilson Ornithological Club:

During the past year, an intensive campaign for new members has been conducted by the Secretary, to aid in offsetting the unusual membership and financial losses due to present economic conditions. This work was handicapped by the increased postal rates, which made wholesale solicitation impossible and by the financial situation, which prevented dozens of interested prospects from affiliating with our organization. The membership as a whole rendered wonderful assistance by sending in nominations.

The campaign was fairly successful, considering the difficulties involved. A total of 113 new members were added to our rolls as follows: Sustaining, 2; Active, 11; Associate, 100. These new members were distributed through 33 states and provinces: Ohio, 32; Michigan, 9; New York and Missouri, 8 each; Massachusetts, 5; Pennsylvania and Illinois, 4 each; Wisconsin, Indiana, Iowa, California, Louisiana, Delaware, and New Jersey, 3 each; Minnesota, Alabama, and the District of Columbia, 2 each; Tennessee, West Virginia, Maine, Texas, Ontario, Nova Scotia, Kansas, Nebraska, Arizona, Hawaii, Montana, New Hampshire, Saskatchewan, New Mexico, Maryland, and Connecticut, 1 each. The Editor's records will show that there has also been an increase in the number of subscribers. Disregarding numerous duplications in nominations, the various members responsible for the applications of the new members were as follows: Lawrence E. Hicks, 96; Jesse M. Shaver, 11; T. C. Stephens, 6; E. L. Moseley, 5; T. Nelson, W. E. Ekblaw, L. B. Kalter, 2 each, and 20 others, one each.

In spite of these increases, the Wilson Ornithological Club has slightly fewer members than last year, due to the unusually large number of resignations and delinquencies for 1932 forced by present conditions. Also a number have been removed from the rolls who have been delinquent for two or more years. Several were lost by death. The total number of members lost during the year 1932 was 139, 50 being actives and 89 associates. Life members have increased 3 and Sustaining members 18. Thus there has been a total loss of 10 members during 1932. What certainly would have been a great financial loss in the total amount of dues collected, was mostly offset by the large number who raised their membership status due to appeals in the WILSON BULLETIN and to the splendidly executed campaign for that purpose waged by President Shaver.

This leaves the present membership of the club at 734, distributed as follows: Honorary, 7; Life, 10 (two are also Honorary); Sustaining, 75; Active, 175; Associate, 469.

Respectfully submitted,

LAWRENCE E. HICKS, *Secretary.*

*Revised to the end of December, 1932.

REPORT OF THE LIBRARIAN FOR 1932

Ann Arbor, Michigan, January 10, 1933.

I have the honor to present herewith the second report of the Librarian of the Wilson Ornithological Club at the end of the second year of the Library's existence.

EXCHANGES. During the past year the Library has received regularly on exchange *Iowa Bird Life* and the University of Iowa *Studies in Natural History*. Recently the Editor of the BULLETIN completed negotiations for the exchange of our BULLETIN for a complete set of the *Iowa Academy of Science Proceedings* which has been received. Other exchanges are on the way to the Library from the Editor at the present writing. The Librarian cannot overemphasize the value of this material. The exchange of the BULLETIN for not only domestic but also foreign journals will be of inestimable scientific value to the Club and its Library in the field of research. In this field the exchanges may quite naturally become the very backbone of the research library.

REPRINTING. On the matter of reprinting out-of-print numbers of the BULLETIN some progress has been made. Through the efforts of Dr. Lynds Jones BULLETIN No. 9 (July, 1896) was reprinted by the firm of Edwards Bros. of Ann Arbor. One hundred and fifty copies were made by the new lithoprint process. BULLETIN No. 10 should also be done at the earliest possible moment.

PRICE. The price for back numbers of the BULLETIN has been definitely fixed at fifty cents per number for all BULLETINS published from 1900 to date, and one dollar per number for all BULLETINS printed before 1900. A twenty per cent discount is allowed to members of the W. O. C. and no discount is allowed to dealers.

STOCK. During 1932 the stock of BULLETINS in the custody of the Librarian ended with the 1924 BULLETINS but at the present writing the BULLETINS from 1925-1932 are on their way to the Library from the Editor.

BOOK PLATE. As yet no book plate has been adopted by the Club although several have been submitted.

DONORS. The Librarian takes pleasure in acknowledging gifts to the Club Library from the following during 1932:

Mrs. Marcia B. Bready, Chestnut Hill, Massachusetts.
Mr. Francis Harper, Swarthmore, Pennsylvania.
Mr. Lawrence E. Hicks, Columbus, Ohio.
Mr. Leon Kelso, Washington, D. C.
Mr. O. A. Stevens, Fargo, North Dakota.
Dr. Aldred S. Warthin, Ann Arbor, Michigan.
Mr. Warren J. Willis, New York City.

The gifts to the Library for 1932 total 66 bound volumes and 97 separates, reprints, and unbound numbers of periodicals. This makes a total for the two-year period of the existence of the Library of 120 bound volumes and 847 separates.

Respectfully submitted,
F. P. ALLEN, *Librarian.*

REPORT OF THE TREASURER FOR 1932

From December 21, 1931 to November 21, 1932

Receipts for 1932

December 21, 1931, Balance on hand as per last report		$ 731.01
The following was collected from members and subscribers:		
1 Associate member for 1931	$ 1.50	
1 Sustaining member for 1931	5.00	
314 Associate members for 1932	471.00	
149 Active members for 1932	372.50	
35 Sustaining members for 1932	175.00	
42 Associate members for 1933	63.00	
19 Active members for 1933	47.50	
8 Sustaining members for 1933	40.00	
2 Associate members for 1934	3.00	
1 Active member for 1934	2.50	
12 Memberships increased after paying dues	41.00	
From membership dues		1,222.00
1 Subscriber for 1931	1.50	
72 Subscribers for 1932	108 00	
5 Subscribers for 1933	7 50	
1 Active Subscriber for 1932	2.50	
17 Foreign Subscribers	33.90	
From subscriptions		153.40
Received from fractional subscriptions	8.48	
Received for extra Bulletins and back numbers	3.00	
Received four gifts of $5.00 each	20.00	
Received one anonymous gift	50.00	
Received miscellaneous extra on checks, etc.	3.35	
Miscellaneous receipts		84.83
Total receipts		$2,191 24

DISBURSEMENTS FOR 1932
(Condensed Form)

Printing four issues of BULLETIN	$1,033.50	
Cost of halftones, zincs, etc.	108.27	
Other expenses in Editor's office	90.99	
Publication costs		$1,232.76
Expenses, President's office	51 48	
Expenses, Secretary's office	142.64	
Expenses, Treasurer's office	40.50	
Operating costs		234.62
General printing bills	80.94	
Expenses, Annual Meeting, New Orleans	82.60	
Foreign Exchange and Discount	3.09	
Refunds on subscriptions	9.33	
U. S. Tax on 19 checks at 2 cents each	.38	
Miscellaneous costs		176.34
Total disbursements		$1,643.72
Balance on hand, November 21, 1932		547 52
Total		$2,191.24

(An itemized list of expenditures with vouchers is attached to the Treasurer's Report).

ENDOWMENT FUND

December 21, 1931, Balance on hand in Endowment Fund (Refer to last Annual Report)	$ 924.23
Received interest on Endowment Fund, June 1, 1932 (The next semi-annual payment will be due December 1. This being a short year the second payment is not included in this report)	18.48
Received life membership from E. A. McIlhenney	100 00
Received life membership from Mrs. Carll Tucker	100.00
Balance on hand, November 19, 1932	$1,142.71

Nothing was paid from this fund during the year.

Respectfully,
W. M. ROSENE, *Treasurer.*

Register of Attendance at the Columbus Meeting

From Illinois: Alfred M. Bailey, Chicago. From Indiana: P. A. Patterson, Linnsburg. From Kansas: Gilford J. Ikenberry, Quinter. From Michigan: Donald W. Douglas, Harry W. Hann, Thomas H. Hinshaw, Josselyn Van Tyne, Leonard W. Wing, Ann Arbor. From Columbus, Ohio: Frances Araut, Mary Araut, Mary Auten, Mary W. Baker, William L. Baker, Mr. and Mrs. Leslie W. Bartow, Donald J. Borror, Stanley W. Bromley, William Brownfield, Amelia Butler, Floyd B. Chapman, Anna Cherry, Helen Chrysler, Mrs. Alice Clark, Grace Collett, Mrs. Cope, Mrs. John C. Crabb, Marcella Crain, Louis F. Cramer, Ruth Donnally, Mrs. Herbert Eagleson, Mr. and Mrs. Joseph Eagleson, Harry Fabert, Emerson Greenman, Ina Ganson, Robert B. Gordon, Mr. and Mrs. Ralph C. Hall, Arthur Haines, Mr. and Mrs. William P. Halencamp, J. C. Hambleton, Mrs. J. D. Harlor, Mr. and Mrs. Lawrence E. Hicks, Lena Howard, W. F. Hughes, William Ireland, Jr., Anna Johnson, Mrs. S. C. Kershaw, Doris M. Klie, Josephine Klippert, Mrs. C. G. Landis, Marina H. Langlois, T. H. Langlois, Mrs. Gehard Laurens, Mrs. Theodore Leonard, Laura E. Lovell, Robert J. Marsh, Charles B. Mayer, Robert H. McCormick, Irene S. McKinley, Eugene W. Mendenhall, James Lewis Morrill, Mary E. Morris, Constance E. Nice, Leonard B. Nice, Margaret M. Nice, Marjorie D. Nice, Herbert Osborn, Raymond C. Osburn, John W. Price, Isabella Reed, Ned Rowland, Mrs. Norma Selbert, Silas Sharp, Mr. and Mrs. Shofield, Mrs. A. Singleton, Amy Starrett, Laurence H. Snyder, Florence Pegg Taylor, Edward S. Thomas, John Thomas, Marion Thomas, Rachel M .Thomas, Henry A. Trautman, Milton B. Trautman, Walter A. Tucker, C. E. Venard, Mrs. Percy Waddell, Charles F. Walker, Alfred N. Watson, Mrs. H. C. Werner, Marguerite Werner, Edna M. Wheitzel, Mrs W. H. Williams, Mrs. Mary B. Wolfram, Henry W. Worley, Ogla Zurcher. From Ohio Outside of Columbus: Marjorie Lee Guest, Athens; Robert M. Geist, L. M. Shupe, Bexley; William P. Holt, E. L. Moseley, Bowling Green; George S. Wolfram, Canal Winchester; H. H. Forsthoefel, Paul Forsthoefel, Celina; J. W. Johnson, Circleville; S. Prentiss Baldwin, Roscoe W. Franks, S. Charles Kendeigh, Carl W. Rahe, Cleveland; Mary E. Campbell, Crooksville; Russel Breece, Delaware; Mr. and Mrs. Benjamin J. Blincoe, Florence E. Clippinger, Louis B. Kalter, Mr. and Mrs. A. Million, John H. Ritter, Dayton; Mr. and Mrs. E. H. Hicks, Fredericktown; Dorothy Slagle, Galloway; E. L. Wickliffe, Grove City; Marcella Crain, Hillards; Mr. and Mrs. Arthur Stupka, Laurelville; Paul A. Stewart, Lony B. Strabala, Leetonia; Maurice E. Foote, Dale Kellog, Norwalk; Robert L. Baird, Lynds Jones, Oberlin; Maltie T. Pake, Portsmouth; William C. Baker, Myron Sturgeon, Salem; Bernard R. Campbell, Louis W. Campbell, Roger Conant, Frederick R. Flickinger, Lawrence D. Hiett, Toledo; Fred A. Hanawalt, Westerville; Mr. and Mrs. Forest G. Hall, Wilmington; Elsie Dakan, Mr. and Mrs. E. L. Dakan, John H. Kegg, Worthington. From Pennsylvania: W. H. Cummings, Philadelphia; W. E. Clyde Todd, Pittsburg. From Tennessee: Albert F. Ganier, Albert F. Ganier, Jr., Jesse M. Shaver, Nashville. Foreign: Erna Gouzalez, Santiago, Chile.

Summary of Attendance: Illinois, 1; Indiana, 1; Kansas, 1; Michigan, 5; Ohio (outside of Columbus), 51; Columbus, 92; Pennsylvania, 2; Tennessee, 3; Foreign, 1. Total attendance, 157. Total outside of Columbus, 65. Number at dinner, 69. Number at Bailey lecture, 174. Number at Museum Open House, 78. Number on Field Trip, 64.

TO OUR CONTRIBUTORS

Our members are urged to submit articles for publication in the BULLETIN. Short items are desired for the department of General Notes, as well as longer contributions, especially pertaining to life-history, migration, ecology, behavior, song, economic ornithology, field equipment, and methods, etc. Local faunal lists are also desired, but they should be annotated, at least briefly, and should be based upon sufficient study to be reasonably complete. Authors are asked to include the common name, the scientific name (from the A. O. U. Check-List), and annotations, and they should be arranged in this order. The annotations should include explicit data concerning unusual species. Omit serial numbering.

THE MANUSCRIPT. The manuscript, or copy, should be prepared with due regard for literary style, correct spelling and punctuation. Use sheets of paper of good quality and of letter size (8½x11 inches); write on one side only, and leave wide margins, using double spacing and a reasonably fresh, black ribbon.

The title should be carefully constructed so as to indicate most clearly the nature of the subject matter of the contribution. Where the paper deals with a single species it is desirable to include in the title both the common and the scientific names, or, to include the scientific name in the introductory paragraph. Contributors are requested to mark at the top of the first page of the manuscript the number of words contained. This will save the editor's time and will be appreciated.

Manuscripts intended for publication in any particular issue should be in the hands of the editor sixty to ninety days prior to the date of publication.

ILLUSTRATIONS. To reproduce well prints should have good contrast with detail. In sending prints the author should attach to each one an adequate description or legend.

BIBLIOGRAPHY. The scientific value of some contributions is enhanced by an accompanying list of works cited. Such citations should be complete, giving author's name, full title of the paper, both the year and volume of the periodical, and pages, first and last.

PROOF. Galley proof will be regularly submitted to authors. Page proofs will be submitted only on request. Proof of notes and short articles will not be submitted unless requested. All proofs must be returned within four days. Expensive changes in copy after the type has been set must be charged to the author.

SEPARATES. The Club is unable, under present financial conditions, to furnish reprints to authors gratis. Arrangements will be made, however, for such reprints to be obtained at practically cost. The cost will vary somewhat with the nature of the composition, but will depend mainly upon the number of pages. A scale of rates is appended which will serve as a guide to the approximate printer's costs.

If a blank page is left in the folding this may be used for a title page, which will be set and printed at the rate indicated. If a complete cover with printed title page is desired it may be obtained at the rate shown in the last column. All orders for separates must accompany the returned galley proof upon blanks provided. Orders cannot be taken after the forms have been taken down.

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200	2.00	2.75	4.25	5.50	6.75	8.00	9.25	10.50	11.75	13.00	14.25	3.00
300	2.75	3.50	5.00	6.25	7.50	8.75	10.00	11.25	12.50	13.75	15.00	4.00
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Annual Meetings of the Wilson Ornithological Club

	Retiring President
1914—Chicago. February 5. Chicago Academy of Sciences.	
1914—Chicago. December 29-30. New Morrison Hotel	T. C. Stephens
1915—Columbus. December 28-29. With the A. A. A. S.	T. C. Stephens
1916—Chicago. December 27-28. New Morrison Hotel	T. C. Stephens
1917—Pittsburgh. January 1-2, 1918. With the A. A. A. S.	W. F. Henninger
1918—No meeting on account of the exigencies of war	M. H. Swenk
1919—St. Louis. December 29-30. With the A. A. A. S.	M. H. Swenk
1920—Chicago. December 27-28. With the A. A. A. S.	R. M. Strong
1921—Chicago. December 26-27. The Field Museum	R. M. Strong
1922—Chicago. October 26	T. L. Hankinson
1923—Cincinnati. Dec. 31, 1923-Jan. 1, 1924. With the A. A. A. S.	T. L. Hankinson
1924—Nashville. November 28-29-30. Peabody College	A. F. Ganier
1925—Kansas City. December 28-29. With the A. A. A. S.	A. F. Ganier
1926—Chicago. November 26-27. Chicago Academy of Sciences	A. F. Ganier
1927—Nashville. Dec. 30, 1927-Jan. 1, 1928. With the A. A. A. S.	Lynds Jones
1928—Ann Arbor. Nov. 31-Dec. 1, 1928. Museum of Zoology	Lynds Jones
1929—Des Moines. December 27-28. With the A. A. A. S.	Lynds Jones
1930—Cleveland. December 29-30. With the A. A. A. S.	J. W. Stack
1931—New Orleans. December 28-29. With the A. A. A. S.	J. W. Stack
1932—Columbus. November 25-26. The Ohio State Museum	Jesse M. Shaver